

Response to Comments on Draft National Pollutant Discharge Elimination System (NPDES) Permit No. NH0000655 – Fraser Papers NH LLC– Gorham, NH.

Introduction:

In accordance with the provisions of 40 C.F.R. §124.17, this document presents EPA's responses to comments received on the draft NPDES permit for Fraser Papers NH LLC (NH0000655). The responses to comments explain and support the EPA determinations that form the basis of the final permit. The Fraser Papers draft permit public comment period began July 16, 2008 and ended August 14, 2008. Comments were received on the draft permit from Fraser Papers, New Hampshire Department of Environmental Services (NHDES), and Maine Department of Environmental Protection (MEDEP). In addition, Fraser Papers, MEDEP, and NHDES submitted additional information after the close of the comment period, which EPA has added to the administrative record. Finally, on September 22, 2008, EPA and NHDES personnel met with representatives of Fraser Papers and (via phone) MEDEP.

The final permit is substantially identical to the draft permit that was available for public comment. Although EPA's knowledge of the facility has benefited from the various comments and additional information submitted, the information and arguments presented did not raise any substantial new questions concerning the permit. EPA did, however, make certain clarifications in response to comments. These improvements and changes are detailed in this document and reflected in the final permit. A summary of the changes made in the final permit are listed below. The analyses underlying these changes are explained in the responses to individual comments that follow.

Changes in Final Permit:

1. All references to the "Cascade Paper Mill" have been changed to "Gorham Paper Mill".
2. Page 1 of the permit has been changed to state, "This permit shall become effective on January 1, 2009."
3. This permit will supersede the permit originally issued on June 10, 1992, last modified on January 21, 1997. This has been clarified on the first page of the permit.
4. Part I.A.1 now reads, "This treated effluent includes paper process wastewater, general housekeeping water, non-contact cooling water, boiler blowdown, and storm water."
5. A requirement to report the ambient river flow rate has been added to the table at Part I.A.1 of the final permit and at Part I.A.1, footnote 5, to allow for use of the appropriate No Data Indicator codes (NODI) to report when USGS does not

provide flow data for the USGS Gorham gauging station. Footnote 5 states, “The permittee shall report the daily minimum and monthly average flow data for USGS Gorham gauging station (#01054000).”

6. The pH range for the discharge from Outfall 018 in Table I.A.1 and for the discharge from Outfall 010b in Table I.A.2.b has been changed to 6.0 – 8.0 S.U. as a result of the demonstration study submitted by the permittee and approved by NHDES.
7. During the time period of June 1st – September 30th, the final permit requires a heat load limit of 1595 MMBTU/day¹ maximum daily and reporting of average monthly. During the time period of October 1st – May 31st, the final permit requires a heat load limit of 2499 MMBTU/day maximum daily and reporting of average monthly. The temperature limits have been replaced with a requirement to monitor without limits. A footnote for heat load calculation has been added in Part I.A.1, footnote 14.
8. In place of end-of-pipe sampling at Outfall 018, the final permit shall require the permittee to sample Outfall 018 effluent for turbidity and temperature at the point of discharge from the final treatment pond to the outfall pipe (at the Parshall Flume), prior to mixing with the river, as well as at a downstream sampling site. The following phrase has been removed from Part I.A.1, footnote 1:
For turbidity and temperature, Outfall 018 shall be sampled at the end-of-pipe location. Fraser Papers shall identify in writing the end-of-pipe sampling location to EPA and the NHDES for review and approval within 30 days of the effective date of the final permit.
All references to the “end-of-pipe” sampling location for Outfall 018 have been removed, or replaced with the Outfall 018 sampling location (at the point of discharge from the final treatment pond to the outfall pipe (at the Parshall Flume), where appropriate. Additionally, a requirement to sample turbidity and temperature at the downstream location has been added to the table at Part I.A.1 of the final permit at in Part I.A.1, footnotes 9 and 13.
9. The first sentence in both Part I.A.1, footnote 3, and Part I.A.2, footnote, 5, has been changed from “equal intervals of no more than sixty” to “equal intervals of no less than sixty” to correct this typographical error.
10. The permit has been changed to allow the permittee use of an alternate dilution water in WET tests. The following footnote (Part I.A.1, footnote 5 of the draft permit) has been removed from the final permit (See item 6 above for an explanation of the new footnote 5):
If toxicity test(s) using receiving water as diluent show the receiving water to be toxic or unreliable, the permittee shall follow procedures outlined in Section IV (Dilution Water) of Attachment 1 in order to obtain permission to

¹ MMBTU/day = Million British Thermal Units per day.

use an alternate dilution water. In lieu of individual approvals for alternate dilution water required in Attachment 1, EPA-New England has developed a Self-Implementing Alternative Dilution Water Guidance document (called “Guidance Document”) which may be used to obtain automatic approval of an alternate dilution water, including the appropriate species for use with that water. If this Guidance Document is revoked, the permittee shall revert to obtaining approval as outlined in Attachment 1. The “Guidance Document” has been sent to all permittees with their annual set of discharge monitoring reports (DMRs) and Revised Updated Instructions for Completing EPA’s Pre-Printed NPDES Discharge Monitoring Report (DMR) Form 3320-1 and is not intended as a direct attachment to this permit. Any modification or revocation to this “Guidance Document” will be transmitted to the permittees as part of the annual DMR instruction package. However, at any time, the permittee may choose to contact EPA-New England directly using the approach outlined in Attachment 1.

Also, Part I.A.1, footnote 4, has been revised to state, “The acute and chronic toxicity testing is to be completed using an alternate dilution water, as approved by EPA.”

The same changes have been made in Part I.A.2 of the permit, footnote 10. Also, footnote 11 has been removed from the permit.

11. The chronic-no observed effect concentration (C-NOEC) effluent limitation of $\geq 1.1\%$ in the table of Part I.A.1 has been removed from the permit and replaced with a requirement to monitor the chronic whole effluent toxicity (WET) as an inhibition concentration (IC25) and report the results without limits. Part I.A.1, footnote 6 of the final permit now states:

The LC₅₀ is defined as the concentration of wastewater (effluent) causing mortality to 50 percent of the test organisms. The “100 %” limit is defined as a sample which is composed of 100 percent effluent. The inhibition concentration (IC25) is defined as the toxicant concentration that would cause a 25% reduction in growth, survival, and reproduction for the test population. If unacceptable results are found in a routine WET test, the permittee shall conduct an additional toxicity test on the species of concern. The additional test shall be conducted as soon as possible. The additional test will be used to determine if the results found in the routine test are verifiable.
12. Part I.A.2, footnote 6 has been edited to be consistent with Part I.A.3, footnote 2, as follows:

The pH of the discharge shall be in the range of 6.5 to 8.0 Standard Units (SU) unless the upstream ambient pH in the Androscoggin River is outside of this range and is not altered by the facility's discharge or activities. If the permittee's discharge pH is lower than 6.5 SU the permittee may demonstrate compliance by showing that the discharge pH was either: (a) higher than, or (b) no more than 0.5 SU lower than, the ambient upstream river water pH. If the permittee's discharge pH is higher than 8.0 SU the permittee may

demonstrate compliance by showing that the discharge pH is either: (a) lower than, or (b) no more than 0.5 SU higher than, the upstream river water pH. The sampling of upstream river water pH necessary to demonstrate compliance shall occur as close in time as possible, but not greater than 1 hour from the time during which the effluent pH is measured, to obtain concurrent measurements.

13. The phrase, “prior to the expiration date of this permit” has been removed from Part I.A.2, footnote 1, to allow removal of the monitoring requirements for filter backwash in the event it is no longer discharged.
14. Part I.C.2.a has been revised for clarification purposes as follows:

The CWIS shall be designed, constructed, operated, and maintained with the intake elevated sufficiently above the bottom of the river inlet to prevent and/or reduce entrainment of demersal eggs (eggs which sink or are deposited on the bottom) and larvae or other benthic organisms that may be present in the vicinity of the CWIS. The permittee shall inspect the intake on an annual basis and clear sediment buildup as necessary. For this purpose, the displacement of sediment is required in the area in close proximity to the intake, approximately 2 feet before and leading up to the intake.
15. Part I.C.2 of the permit has been revised for clarification purposes as follows:

At any time prior to the expiration date of this permit, the permittee may submit written certification, in accordance with 40 CFR 122.22, that the Pulp Mill CWIS has ceased operation and no further cooling water will be withdrawn from this CWIS. Cooling water consists of any water used for contact or noncontact cooling (including water used for equipment cooling, evaporative cooling tower makeup, and dilution of effluent heat content, but *not* including any such cooling water that was used in a manufacturing process either before or after it was used for cooling). After this operational change is verified by an EPA or NHDES inspection, and upon written approval from EPA, the permittee shall not be required to comply with the requirements of Part I.C.1-3. Unless and until the permittee received written approval from EPA, the permittee shall comply with all requirements of Part I.C.
16. Part I.C.4 has been revised as follows:

The intake of cooling water through the Paper Mill CWIS, and all associated discharges (including paper plant CWIS filter backwash), are prohibited (with the exception of during emergency use, as described in Part I.C.5 below). Cooling water consists of any water used for contact or noncontact cooling (including water used for equipment cooling, evaporative cooling tower makeup, and dilution of effluent heat content, but *not* including any such cooling water that was used in a manufacturing process either before or after it was used for cooling). The permittee may, at any time, submit a request for a permit modification to authorize the use of the Paper Mill CWIS and associated discharges. Prior to submission of such a request, the permittee

shall upgrade the CWIS to reflect BTA. Any such permit modification request must include sufficient information for EPA to make a BTA determination. The permittee shall not withdraw cooling water through the Paper Mill CWIS unless and until EPA issues a permit modification authorizing such withdrawals.

17. The following conditions apply to operation of the paper mill CWIS during emergency use, and have been added at Part I.C.5 of the permit:
 - a. The volume of water withdrawn through the CWIS shall be limited to 12 MGD.
 - b. The permittee shall implement a CWIS Monitoring Program to determine, as a baseline, the number of adult and juvenile fish of all species being impinged on or within the CWIS. All locations in the CWIS where fish could potentially be impinged or trapped shall be included as sampling sites. Monitoring shall take place hourly, during CWIS operation. Monitoring shall be for all fish species. Monitoring logs shall include the following: date; time; observer/operator; number of fish; and for each fish observed, the fish length, species, condition (whether the fish was alive when collected), and whether the fish was returned to the river.
 - c. Use of the CWIS shall be discontinued as soon as the pulp mill CWIS is re-operable. The total number of days on which use of the CWIS occurs shall not exceed fourteen days in any calendar year. Following each use, the permittee shall prepare and submit to EPA a CWIS Biological Monitoring report. This CWIS Biological Monitoring Report shall include all data from the monitoring logs collected in the CWIS Monitoring Program described above in Part (b), as well as a summary of the data. The CWIS Biological Monitoring Report shall be due on the month following CWIS use. In each such report, monitoring and sampling results shall be recorded and summarized for each operating period. The report shall include the locations in the CWIS that were monitored, the specific sampling methods used, the date and time of sampling, the length of any fish observed (in inches), the species of any fish observed, the condition (whether the fish was alive when collected), and whether the fish was returned to the river. The average daily flows for the CWIS on each date sampled, as well as any excursions from the CWIS Monitoring Program shall be reported. The CWIS Biological Monitoring Report also shall describe the measures taken to ensure that those involved in planning and conducting the monitoring have the necessary knowledge and ability to (1) ensure sampling accuracy and effectiveness, including the ability to identify all fish found in this area to the species level, and (2) return trapped organisms to the river by means designed to maximize their survival. The report shall also include the dates during which the CWIS was used and a detailed explanation of the reason for the use.

- d. The permittee shall submit a copy of all the reports required in this Part to EPA, NHDES, and the U. S. Fish and Wildlife Service (USFWS), and the New Hampshire Fish and Game Department (NHFGD) at the addresses listed in Part I.E of the permit, Monitoring and Reporting.
- e. Any unusual impingement event must be reported to the EPA, the NHDES, and the NHFGD within 24 hours by telephone. If the permittee observes four (4) or more fish on the CWIS during any one of the following situations, this would qualify as an unusual impingement event, warranting notification: 1) during a required impingement monitoring program observation event, 2) at any time the CWIS is viewed, or 3) when the cumulative number of individual fish observed on the CWIS totals four or more based on multiple observations over the course of any 24-hour period. The 24-hour notice must be followed with a written report.

The written report, to be submitted within ten working days of the event, shall include the following information:

- (1) The species, sizes, and approximate number of fish involved in the incident.
- (2) The time and date of the occurrence.
- (3) The operating mode of the facility, including the estimated volume of intake water.
- (4) The permittee's opinion as to the reason the incident occurred.
- (5) The remedial action the permittee will take to prevent or reduce the likelihood of a recurrence of the incident, to the maximum extent practicable.

18. Part I.G.1, Special Conditions, Gulf Island Pond Oxygen Injection Operation has been revised as follows:

The permittee shall, independently or in cooperation with FPL Energy Maine Hydro LLC, Rumford Paper and Verso Paper, or their successors-in-interest, operate an upgraded oxygen injection system at Upper Narrows in Gulf Island Pond. The permittee shall be responsible for ensuring that oxygen is injected at the rate of at least 34,144 pounds per day at Upper Narrows in Gulf Island Pond, at an oxygen transfer efficiency of 33%. With prior written approval from EPA in consultation with the Maine Department of Environmental Protection (ME DEP), the permittee may inject oxygen at equivalent rates at higher transfer efficiencies and/or other locations, or take other equivalent measures to increase dissolved oxygen levels in Gulf Island Pond.

After re-calibration of the water quality model for Gulf Island Pond following the correction of any errors relating to dispersive mixing, as well as any other future modifications to the model and revisions to Maine DEP's May 2005 Androscoggin River Total Daily Maximum Load (TMDL) Report, and/or after reviewing the results of monitoring following the implementation of all additional oxygen injection or other equivalent measures and all reductions in point source discharges required pursuant to the TMDL Report and any future revisions thereto, EPA may reopen the permit pursuant to 40 C.F.R. § 122.62 and modify the permit to require reduced effluent limitations, changes in oxygen injection system(s) and/or oxygen injection rates, or changes in other equivalent measures, as may be deemed necessary to ensure that the permittee's wastewater discharge, either by itself or in combination with other discharges, does not cause or contribute to the violation of water quality standards in Gulf Island Pond.

19. Part I.G.4, Visible Plume Identification and Removal, of the final permit now states:

The permittee shall identify and remove the source of the visible plume in the discharge from Outfall 018 to the Androscoggin River. As an initial step, the permittee shall determine the source of the visible plume unless the visibility is removed by a diffuser or other physical means. The component, if any, of plume visibility consisting of air or reduction in color (from the original river water by processing of the river) need not be removed.

20. The monitoring requirement for the flow through Outfall 025 in Part I.A.3 of the permit has been changed from "continuous" to "1/month."

21. A requirement to complete a Toxicity Reduction Evaluation (TRE) has been added at Part I.G.5 of the permit as follows:

The permittee shall conduct a toxicity reduction evaluation (TRE). The TRE shall require a Toxicity Identification Evaluation (TIE) along with an analysis of the cause of acute toxicity, a study of the aluminum level in the intake and its impact on toxicity, as well as all major TRE components as outlined in the EPA *Toxicity Reduction Evaluation Guidance for Municipal Wastewater Treatment Plants* (August 1999).

Once the permittee reduces toxicity to an acceptable level (or eliminates it) as determined by EPA, and maintains compliance, the TRE goal has been met upon EPA approval. The TRE then may be discontinued, if appropriate, and the routine monitoring schedule resumed. EPA may use the monitoring results of the toxicity tests and the results of the TRE to develop numerical effluent limitations for any pollutants in the future, as necessary. The permittee shall submit a TRE scope of work within 60 days of the effective date of the permit, begin the TRE within 90 days of the effective date of the permit, and complete the TRE within four years of the effective date of the permit.

22. The permit has been changed at Part I.C.2.b as follows:
The permittee shall minimize the intake of water at the CWIS to the maximum extent practicable using best management practices (BMPs). In no event shall the volume of water withdrawn exceed 17 MGD on any day. **The permittee shall report the maximum daily and monthly average water intake flow.**
23. Part I.H of the final permit has been revised as follows:
This permit may be modified, or alternatively revoked and reissued, if a future reallocation of the Total Maximum Daily Load (TMDL), the temperature monitoring requirements, or any other water quality based study of the Androscoggin River performed by EPA, NHDES, and/or the Maine DEP indicate the discharge causes, has the reasonable potential to cause, or contributes to an exceedance of any State water quality criterion. These results may be considered new information under 40 CFR 122.62(a)(2) and the permit may be modified, or alternatively, revoked and reissued to require further study or revised effluent limitations. Any of these additional limits could be expressed in terms of concentration and/or mass where appropriate. Furthermore, should any of these studies result in a revision of the available dilution, current limits based on dilution could be revised.
- Additionally, if EPA receives information that the GIPOP oxygenation system is not installed and operated pursuant to the plan and schedule approved by the Maine DEP, or new information regarding whether oxygenation remains the preferred economic and environmental method for attaining water quality standards, EPA may reopen the permit pursuant to 40 C.F.R. § 122.62, reevaluate whether oxygenation remains the preferred alternative under § 125.3(f), and decide whether Fraser Papers should be required to achieve further effluent reductions.
24. All references to “Former Pulp Mill Filter House Backwash” have been changed to “Burgess Filter House Backwash” for consistency throughout the final permit.
25. The requirement in Part I.D.1 of the permit, for the permittee to begin participation in the ambient water quality monitoring of GIP on June 1, 2008, has been changed to June 1, 2009.
26. The requirement in Part I.D.1 of the permit, for the permittee to begin submitting written reports summarizing the results of the ambient water quality monitoring of GIP for that year has been changed from November 30, 2008 to November 30, 2009. Additionally, in this same section of Part I.D.1, the phrase “ambient quality monitoring” has been changed to “ambient water quality monitoring.”
27. In Part I.D.1, the phrase, “submit an updated ambient water quality monitoring plan for that year to the EPA, and the ME DEP for review and comment with or without conditions if the monitoring plan is different than as specified in this

section” has been changed to “submit an updated ambient water quality monitoring plan for that year to the EPA, and the ME DEP for review and comment” for clarification purposes.

28. Part I.A.1, footnote 7, has been revised to specify that the metals shall be reported as total recoverable concentrations.
29. Part I.A.1, footnote 8, has been revised to state:

As a minimum, the upstream sampling location shall be representative of naturally occurring conditions in the Androscoggin River and must be taken prior to mixing with any of the discharges from the Gorham Paper Mill WWTP. Fraser Papers shall identify in writing the upstream and downstream sampling locations to EPA and the NHDES for review and approval within 30 days of the effective date of the permit. Turbidity and temperature sampling is to commence on the effective date of the permit.

This is revised from the draft permit which specified “...the effective date of the final permit. Turbidity and temperature sampling is to commence on the effective date of the final permit”
30. Part I.A.1, footnote 10 has been revised from “as described in detail in Part V.A.5.d of the fact sheet and Part I.D.3 of the draft permit” to “as described in detail in Part I.D.3 of the permit,” so as not to refer to the Fact Sheet or draft permit in the final permit.
31. Part I.A.1, footnote 13 has been revised for clarification purposes to state “The permittee shall report the upstream and downstream river temperatures that are concurrent with the daily maximum discharge temperature reported for the month for Outfall 018.”
32. The phrase “shall occur” has been removed from Part I.A.2, footnote 12 (footnote 13 in the draft permit), for clarification purposes.
33. In Part I.A.3, footnote 4, the phrase, “The pH sampling is to commence on the effective date of the final permit” has been changed to “The pH sampling is to commence on the effective date of the permit” for clarification purposes.
34. Part I.A.10 has been revised for clarification purposes from “The permittee shall submit the results to EPA of any additional testing done to that required herein...” to “The permittee shall submit the results to EPA of any additional testing done beyond that required herein...”
35. In Part I.A.11, the phrase “General Requirements of this permit” has been revised to “General Requirements (Part II) of this permit.”
36. Part I.E. of the permit has been revised to include the address of US Fish and Wildlife (USFWS) and New Hampshire Fish and Game Department (NHFGD)

- for the purpose of contact information. This revision includes addition of the USFWS address, which was absent from the draft permit. It also changes the permit so as not to require the permittee to submit DMR information to NHFGD.
37. Part I.C.6 has been changed from a requirement to notify the “Regional Administrator and Director of the Water Division of the New Hampshire Department of Environmental Services” to a requirement to notify the “EPA and NHDES – WD” to be consistent with other permit notification requirements.
 38. In Part I.D.2, the phrase “in accordance with work plan approved by the NH-DES” has been changed to “in accordance with a work plan approved by the NHDES.” Additionally, all references to NH-DES in the final permit have been changed to NHDES.
 39. In Part I.D.2, the phrase “with the December DMR” has been changed to “annually with the December DMR” to clarify that the results must be submitted annually with the December DMR.
 40. In Part I.D.2, the phrase “copies of the results of the survey results” has been changed to “copies of the monitoring results” for clarification purposes.
 41. In Part I.D.2, the phrase “that data will be take to support the conditions of the River” has been changed to “such a decline will be taken to reflect the conditions of the River” for clarification purposes.
 42. In the equation to calculate the PRTI in Part I.D.3, the “(Daily Min Flow_{river})” has been changed to “(Daily Min Flow_{ambient})” to be consistent with the monitoring requirements in Part I.A.1 of the permit for Ambient Flow.
 43. In Part I.G.3, the phrase “(e.g., 5.0 to 9.0 Standard Units)” has been replaced with “(5.0 to 9.0 Standard Units)” for clarification purposes.
 44. In Part I.A.3, footnote 5 has been added as follows: “The permittee may request a reduction of the monitoring frequency for TSS following one year of samples which do not detect elevated levels of TSS in the discharge from Outfall 025.”
 45. Part I.B.3 of the permit has been revised to state:
The discharge from Outfall 017 consisting of filter backwash from the Paper Plant is prohibited unless the conditions in Part I.C.4 apply. If the conditions in Part I.C.4 apply, the permittee shall apply the monitoring and reporting requirements of Part I.A.2.a and I.A.2.b, above, to the discharge through Outfall 017.
 46. The phrase, “and from associated outfalls in Berlin, NH” has been added to the first page of the permit.

SUMMARY OF COMMENTS:

1.0 WET TESTING (Outfall 018)

1.1 FRASER COMMENT:

Page 3 of 24 – The draft permit establishes limits which are not supportable. The current permit for the Gorham Mill provides for reporting only on whole effluent toxicity (WET). The history of Fraser's WET testing reporting in Gorham indicates that there have been only two acute toxicity excursions in the last 5 years (1st quarter 2005 and 2008), and there is no basis set forth in the Fact Sheet for imposing an acute toxicity limit in the new permit. Similarly, the results of prior WET testing for chronic toxicity indicate two instances of potential exceedances of the limit that EPA proposes in this permit (1st quarter 2004, and 2nd quarter 2007). There is an insufficient basis to require a chronic toxicity standard now. See Attachment A, Whole Effluent Toxicity Testing Results.

1.2 FRASER COMMENT:

Further justification for maintaining a reporting requirement only for WET testing is the correlation between the WET results that are at or below the proposed limits and the presence of aluminum in the ambient river conditions. Comparing Attachment A (the WET Testing Results), with Attachment B, Aluminum Levels in Receiving Water (Androscoggin River), indicates that in each case of a sample exceeding the aluminum chronic criterion, the chronic exposure WET testing results were at 3% or below. Furthermore, for the January 2004 and April 2007 excursions from the 1.1% reporting threshold, the ambient receiving water exceeded the chronic toxicity water quality standard for aluminum. N.H. Code of Administrative Rules, Env-Wq 1701.21, Table 1703.1. This raises a substantial question as to whether the ambient condition of the receiving water that is drawn into the paper mill process and is the basis of the ultimate discharge contributes to any toxicity issues at the mill.

1.3 FRASER COMMENT:

Page 6 of 24 – The acute and chronic toxicity limits in the draft permit are not justified given the WET reporting history since Fraser began operating the mill and indications that the toxicity may be caused by elevated aluminum levels in the ambient river water. If EPA includes additional toxicity conditions in the final permits, however, Fraser requests that it first be allowed to undertake a Toxics Identification Examination/Toxics Reductions Examination pursuant to EPA's Clarifications Regarding Toxicity Reduction and Identification Evaluations in the National Pollutant Discharge Elimination System Program, March 27, 2001. To the extent that there is a toxicity concern about the discharge from Outfall 018, Fraser needs time to understand its cause and to determine a most effective method to address it. A reasonable compliance schedule for the new water quality based limit needs to be determined.

1.1 - 1.3 RESPONSE:

New Hampshire Water Quality Standards state that, “all waters shall be free from toxic substances or chemical constituents in concentrations or combination that injure or are inimical to plants, animals, humans, or aquatic life.” (N.H. RSA 485-A:8, VI and the N.H. Code of Administrative Rules, PART Env-Wq 1703.21(a) (renumbered from Env-Ws)). The Federal NPDES regulations at 40 CFR §122.44(d)(1)(v) require whole effluent toxicity limits in a permit when a discharge has a “reasonable potential” to cause or contribute to an excursion above the State's narrative criterion for toxicity.

EPA has determined that a “reasonable potential” exists for the discharge to exceed acute toxicity limits based on the statistical analysis method for determining “reasonable potential” outlined in the Technical Support Document for Water Quality-Based Toxics Control (TSD), Chapter 3. The permittee states that it has had “only” two acute toxicity excursions over the past 5 years. This is based on quarterly sampling of the effluent. Thus, of the 20 samples that have been collected in the past 5 years, two have shown acute toxicity. Based on extrapolation of this sampling data, the discharge from the facility is expected to be acutely toxic approximately 10% of the time. This is a substantial percentage of time for the discharge to show acute toxicity and indicates that a reasonable potential exists for the discharge to exceed the acute toxicity limit of 100%. Therefore, the acute toxicity limit shall remain in the permit.

The situation is somewhat different for chronic toxicity. As explained in the Fact Sheet, EPA’s review of chronic toxicity testing data shows that there have been a number of occasions in the past few years with evidence that the effluent from the facility is having an adverse effect on the survival and reproduction of the Daphnid (Ceriodaphnia dubia) test organisms and the survival and growth of the Fathead Minnow (Pimephales promelas) test species. This is evidence of a chronic toxicity problem associated with the discharge from Outfall 018. However, EPA has re-evaluated the WET test data and determined that more information is necessary in order to determine if the discharge has a “reasonable potential” to cause or contribute to an excursion of the proposed chronic toxicity limit of $\geq 1.1\%$.

Additionally, the permittee claims that ambient levels of aluminum in the intake water may factor into the toxicity of the discharge and notes the possibility for a potential correlation. EPA agrees that further investigation, in the form of a toxicity reduction evaluation (TRE), is necessary in order to determine if this is the source of toxicity and to investigate any other potential sources of toxicity in the discharge.

Therefore, a TRE shall be required in the permit, in place of numerical chronic WET effluent limitations, to assess the likelihood of receiving stream toxicological impacts. EPA believes that chronic WET monitoring, along with a requirement to perform a quantitative risk assessment study in the form of a TRE as suggested by the permittee, is appropriate in place of chronic effluent limitations in the permit at this time. Chapter 5.8 of the *Technical Support Document for Water Quality-based Toxics Control* (TSD) states:

Where monitoring indicates unacceptable effluent toxicity, one principle mechanism for bringing a discharger into compliance with a water quality-based

whole effluent toxicity requirement is a toxicity reduction evaluation (TRE). The purpose of a TRE is to investigate the causes and identify corrective actions for difficult effluent toxicity problems. The permitting authority may require that the permittee conduct a TRE in those cases where the discharger is unable to explain adequately and immediately correct exceedances of a whole effluent toxicity permit limit or requirement.

The TRE shall include completion of a TIE as a component of the TRE, to characterize and identify the cause(s) of toxicity². The TIE shall include an analysis of the cause of acute toxicity. The TRE shall also require a study of the aluminum level of the intake water and its impact on toxicity, along with all major TRE components as outlined in the *EPA Toxicity Reduction Evaluation Guidance for Municipal Wastewater Treatment Plants* (August 1999). The TRE may include investigation of general housekeeping procedures, a facility review of treatment and process chemicals and uses, treatability tests, and monitoring of suspected toxicants in the effluent.

The following has been added to Part I.G.5 of the permit:

The permittee shall conduct a toxicity reduction evaluation (TRE). The TRE shall require a Toxicity Identification Evaluation (TIE) along with an analysis of the cause of acute toxicity, a study of the aluminum level in the intake and its impact on toxicity, as well as all major TRE components as outlined in the *EPA Toxicity Reduction Evaluation Guidance for Municipal Wastewater Treatment Plants* (August 1999).

Once the permittee reduces toxicity to an acceptable level (or eliminates it) as determined by EPA, and maintains compliance, the TRE goal has been met upon EPA approval. The TRE then may be discontinued, if appropriate, and the routine monitoring schedule resumed. EPA may use the monitoring results of the toxicity tests and the results of the TRE to develop numerical effluent limitations for any pollutants in the future, as necessary. The permittee shall submit a TRE scope of work within 60 days of the effective date of the permit, begin the TRE within 90 days of the effective date of the permit, and complete the TRE within four years of the effective date of the permit.

The testing and reporting of acute and chronic toxicity shall occur quarterly, using the species Daphnid (*Ceriodaphnia dubia*) and Fathead Minnow (*Pimephales promelas*), in accordance with the test procedure and protocol (Freshwater Chronic Toxicity Test Procedure and Protocol dated May 2007) which is provided as Attachment 1 to the permit. This Test Procedure and Protocol contains the appropriate chronic (and modified acute) toxicity test protocols. The 100% effluent limitation shall be retained in the permit as the acute WET limit. If the chronic monitoring results demonstrate that the “discharge causes, has the reasonable potential to cause, or contributes to an in-stream excursion above a narrative criterion within an applicable State water quality standards,” EPA may

² Clarifications Regarding Toxicity Reduction and Identification Evaluations in the National Pollutant Discharge Elimination System Program. (EPA, March 2001).

develop numerical chronic WET limits or chemical-specific limits for the effluent (See 40 CFR 122.44(d)(1)(v)).

Accordingly, in Part I.A.1 of the final permit, the effluent limitation in the table for chronic WET testing has been replaced with a reporting requirement and footnote 6 now states:

The LC₅₀ is defined as the concentration of wastewater (effluent) causing mortality to 50 percent of the test organisms. The "100 %" limit is defined as a sample which is composed of 100 percent effluent. The inhibition concentration (IC25) is defined as the toxicant concentration that would cause a 25% reduction in growth, survival, and reproduction for the test population. If unacceptable results are found in a routine WET test, the permittee shall conduct an additional toxicity test on the species of concern. The additional test shall be conducted as soon as possible. The additional test will be used to determine if the results found in the routine test are verifiable.

See Response to Comment 1.7 regarding use of the IC25 test.

1.4 FRASER COMMENT:

The draft permit would require reporting of various parameters (other than actual toxicity results) of the Outfall 018 effluent during WET testing. Fraser believes this to be redundant in that this data has always been included in the WET report submitted with the monthly Discharge Monitoring Reports and therefore readily available for review. The reporting requirement for all specific parameters should be deleted.

1.4 RESPONSE:

Reporting of the additional monitoring requirements which are required by WET tests on DMRs allows the data to be easily recorded in EPA's electronic database – the Integrated Compliance Information System (ICIS). The Integrated Compliance Information System (ICIS) supports the information needs of the national enforcement and compliance program as well as the unique needs of the National Pollutant Discharge Elimination System (NPDES) program. The Web-based system enables individuals from states and EPA to access integrated enforcement and compliance and NPDES data from any desktop connected to the Internet. The ICIS data is copied monthly into the Integrated Data for Enforcement Analysis (IDEA) system and made available via the ECHO Web interface to allow public Internet access to integrated data, updated monthly. EPA's ability to target the most critical environmental problems will improve as the system integrates data from all media.

Reporting the monitoring results of the specific parameters on the monthly DMRs is not particularly burdensome on the permittee, is important for compliance monitoring, and serves the public interest. Therefore, the requirement to report the monitoring results on the monthly DMRs has been retained in the permit.

1.5 FRASER COMMENT:

Requiring a chronic and acute toxicity limit in this permit when recently-issued permits for comparable facilities downriver do not have any such requirements puts Fraser in a position of unfair competitive disadvantage.

1.5 RESPONSE:

The Clean Water Act requires EPA to impose technology-based requirements and water quality-based requirements. See CWA §§ 301(b)(2)(A), 301(b)(1)(C); 40 C.F.R. §§ 122.44(a)(1), 122.44(d). Permit conditions are written taking into consideration “limits based on both the technology available to treat the pollutants (i.e., technology-based effluent limits), and limits that are protective of the designated uses of the receiving water (water quality-based effluent limits).”³ While EPA considers whether the costs of *technology*-based requirements may be “reasonably borne” by the facility, maintaining Fraser Paper’s competitive market position vis-à-vis other paper mills on the Androscoggin River is not EPA’s role and not an appropriate consideration in writing this permit, particularly for a water quality parameter such as toxicity.

Comments regarding toxicity conditions in permits issued to Maine facilities should be directed to the Maine Department of Environmental Protection. As explained in Response to Comments 1.1 and 1.2, the final permit replaces chronic WET limits with monitoring and TRE requirements.

1.6 FRASER COMMENT:

The specific chronic toxicity limit is based upon a 7Q10 flow that is inconsistent with the legally-established 7Q10 for Berlin. The 7Q10 of 1550 CFS in Berlin has long been used to establish various permitting requirements for the Fraser mill and other facilities along the Androscoggin River. See Attachment C, and August 1, 2005 e-mail from Dana Murch of the Maine Department of Environmental Protection. Any deviation from other facilities’ commitments on instream flow should not be the basis of a permit condition imposed on Fraser.

1.6 RESPONSE:

The 7Q10 was recently revised since changes have occurred in flow from facilities along the Androscoggin River, including the change in flow associated with the closure of the permittee’s own pulp mill. As of June 2008, NHDES defined the 7Q10 just upstream of the paper mill as 1,336 cfs. See Attachment I to the Fact Sheet and refer to the following excerpt from the Fact Sheet (p. 11):

The NHDES recently re-estimated local 7Q10 for the Androscoggin River from Berlin to Gorham using the 1963 to 2006 post log drive period of record at the USGS gage in Gorham. The 7Q10 just upstream of the Cascade paper mill was estimated to be 1,336 cfs (See Attachment I). These river flows form the basis for calculating the water quality-based criteria limits for the Androscoggin River in New Hampshire.

The 7Q10 (i.e., the lowest stream flow for seven consecutive days that would be expected to occur once in ten years) is a technical engineering calculation. NHDES, which is the

³ U.S. EPA NPDES Permit Writers’ Manual, p. 49.

New Hampshire agency responsible for implementing the NH WQS, has estimated 7Q10 in a manner that EPA finds reasonable. Therefore, EPA adopts NHDES's 7Q10 value.

1.7 FRASER COMMENT:

The proposed test for chronic toxicity in the draft permit is No Observable Effect Concentration (C-NOEC) $\geq 1.1\%$. Several statistical issues have been raised pertaining to the NOEC test. First, NOEC must be one of the treatment concentrations, and therefore is completely dependent on the number and spacing of concentrations. Second, NOEC is dependent on the choice of statistical test, significance (α or Type I error rate), and data transformation. As a result, different tests, significance levels, or transformations could produce different NOECs from the same data. Third, because the determination of NOEC is driven by statistics rather than toxicity effects, poor experimental design (such as small sample size, improper spacing of treatment concentrations, large variability) tends to increase NOEC. Thus, if the power of the statistical test is low, adverse effects about the concentration-response relationship (e.g. steepness, variability) is disregarded and finally, because of the nature of the method, confidence intervals cannot be calculated for NOEC. Therefore, it is not possible to compare accuracy of NOEC's from different experiments. The IC25 method overcomes most of the problems associated with NOEC. Therefore, Fraser requests that the test used for chronic toxicity be the IC25 instead of the NOEC. See Attachment D, Crane and Newman, "What Level of Effect is No Observed Effect?", *Environmental Toxicology and Chemistry*, Vol. 19, No. 2, pp. 516-519 (2000).

1.7 RESPONSE:

EPA agrees that the CNOEC and IC25 are comparable measures of chronic toxicity using the fathead minnow, *Pimephales promelas*, and the daphnid, *Ceriodaphnia dubia*. Norberg-King reported that the IC25s were comparable to the NOECs for 23 effluent and reference toxicant data sets analyzed. The data sets included short-term chronic toxicity tests for the fathead minnow, *Pimephales promelas*, and the daphnid, *Ceriodaphnia dubia*.⁴ Similarly, EPA reported that the IC25s were comparable to the NOECs for a set of daphnid, *Ceriodaphnia dubia*, chronic tests with a single reference toxicant.⁵

Therefore, the permit has been changed, as requested, to require monitoring of the IC25 in place of the CNOEC. The inhibition concentration (IC) is defined as the toxicant concentration that would cause a given percent reduction in a non-quantal biological measurement for the test population. For example, the IC25 is the concentration of toxicant that would cause a 25% reduction in mean young per female or in growth for the test population.⁶ Monitoring for the IC25 shall occur at a frequency of 1/quarter.

⁴ Norberg-King, T.J. 1991. Calculation of ICp values of IC15, IC20, IC25, IC30, and IC50 for Appendix A of the revised Technical Support Document. Memorandum to M. Heber, Office of Water, U.S. Environmental Protection Agency, Washington, D.C.

⁵ USEPA. 1988d. An interpolation estimate for chronic toxicity: The ICp approach. Norberg-King, T. J. Technical Report 05-88, National Effluent Toxicity Assessment Center, Environmental Research Laboratory, U. S. Environmental Protection Agency, Duluth, MN 55804.

⁶ EPA, Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms, Fourth Edition, October 2002.

1.8 FRASER COMMENT:

The proposed limit for chronic toxicity in the draft permit is $\geq 1.1\%$ which would mean a result of 1.1% or above is compliant. The Fact Sheet (p. 36), however, states that a result of 1.1% or less would be a permit violation. If EPA imposes a toxicity limit on the facility that statement should be modified to say that a result of less than 1.1 % would be a violation (But see discussion below on undertaking a TIE/TRE).

1.8 RESPONSE:

The Fact Sheet incorrectly states that a CNOEC result of 1.1% or less would be a permit violation. However, the comment is now inapplicable since the permit has been changed to require monitoring only, and for IC25 rather than CNOEC.

1.9 FRASER COMMENT:

Page 5 of 24 (footnotes 4-7) – The draft permit requires that dilution water be obtained from the Androscoggin River. While the draft permit allows Fraser the opportunity to demonstrate that the diluent from the river may not be an approximate one, Fraser should not have to be required to make that demonstration again. A prior owner of the mill has already made that demonstration to EPA, which accepted the use of a synthetic diluent for the WET testing at the Gorham Mill. See Attachment E, a December 12, 1995 letter from Frederick B. Gay of EPA to former Environmental Director of the mill regarding WET testing diluent. Further, the data in Attachment B shows recurring levels of aluminum above water quality standards in the receiving water, which imparts toxicity into the ambient receiving water and renders it unsuitable as a diluent for toxicity testing. Attachment F, a table showing ongoing problems with toxicity performance of the receiving water, offers further evidence of the inappropriateness of using river water as the diluent.

1.9 RESPONSE:

The permit has been changed to allow the permittee use of an alternate dilution water, previously approved for use in a letter dated December 12, 1995 from EPA to a previous owner of the mill. The WET tests shall be performed at a frequency of 1/quarter. As a result, the procedure for requesting an alternate dilution water in Part I.A.1, footnote 5, and in Part I.A.2, footnote 11, has been removed from the permit.

1.10 FRASER COMMENT:

Even assuming the WET testing results will only need to be reported, Fraser request that the sampling frequency be changed from quarterly to annually. Special condition G.2 supports this change for chronic WET sampling, since the purported limit has been met in the most recent four successive monitoring rounds. Reducing the acute WET testing frequency is also justified, notwithstanding that the only excursion in 5 years occurred in January 2008.

1.10 RESPONSE:

Monitoring frequency is determined on a case-by-case basis. According to the NPDES Permit Writers' Manual, the intent is to establish a frequency of monitoring that will

detect most events of noncompliance without requiring needless or burdensome monitoring (p 119). In establishing monitoring frequency, the permit writer estimates the variability of the concentration of the parameter by reviewing effluent data for the facility, or in the absence of such data, by reviewing data from similar dischargers.

EPA does not agree that WET testing only needs to be conducted annually. EPA's Clarifications Regarding Toxicity Reduction and Identification Evaluations in the National Pollutant Discharge Elimination System Program, March 27, 2001, states that "intermittent or marginal toxicity may be addressed by increasing WET testing frequency." Therefore, EPA suggests that the permittee monitor even more frequently than the required quarterly monitoring when conducting the TRE. Once the permittee reduces toxicity to an acceptable level (or eliminates it) and maintains compliance, the quarterly monitoring schedule may be resumed.

2.0 TURBIDITY AND VISIBLE PLUME

2.1 FRASER COMMENT:

Page 3 of 24 – The draft permit includes turbidity monitoring (report only) requirements for Outfall 018 for the first time; there is no basis for it. The statement on page 37 of the fact sheet referring to "long history" of turbidity problems at the Gorham facility is over-stated, though there is a long-ago history of turbidity issues. EPA relies heavily on Attachment E of the Fact Sheet to illustrate the turbidity issue, yet that summary of sampling data shows turbidity exceedances of any unreasonable number or significances only in the years 2002 and 2003. There was one exceedance in 2004 and there were two in 2005. There have been none in 2006, 2007, and 2008. See Attachment G, Turbidity Testing Results.

This most recent three year history of compliance with the State of New Hampshire turbidity limit is most reflective of Fraser's operation of the facility and is a better gauge of whether reporting for turbidity is needed. A permit condition requiring it is not warranted.

DES enforcement actions on this issue dates back to the year 2000, and earlier. Fraser has complied with the 2002 Consent Agreement and Final Order that was issued when Fraser purchased the facility. EPA's own inspection report from January 29, 2006 notes that the discharge is "highly aerated", and notes a "visible effluent plume". See page 38 of 71 of the Fact Sheet. See also Attachment H, Bill Wandle memorandum dated August 25, 2006, enclosing a copy of EPA Compliance Sampling Inspection Report on January 19, 2006. The EPA field study conducted on January 19, 2006 included a turbidity measurement of 34.1 NTU for Outfall 018, but 4.82 NTU immediately after mixing with river water at the outfall pipe. The sample 1500' downstream showed a turbidity level of 4.22 NTU. These results indicate that the discharge did not cause an exceedance of the New Hampshire turbidity standard (a change of >10 NTU).

In addition, for years, Fraser and its predecessors have been monitoring turbidity at Outfall 018 at the discharge flume, prior to the river discharge. Attachment I is a probability plot of the Outfall 018 turbidity measurements for the period of August 15, 2004 through August 14, 2006. The average (50th percentile) turbidity measurement for the 2-year period (730 data points) is approximately 25 NTU. The 95th percentile value is approximately 65 NTU, and the 99th percentile is approximately 90 NTU. Based on a 7Q10 river flow of 1550 cfs, the design Outfall 018 flow of 15 mgd (23.1 cfs) and only 25% of the river flow, a dilution factor of $(1550 \times 0.25)/23.1 = 16.8$ is calculated. On that basis, even assuming zero turbidity in the river, Outfall 018 could have a turbidity as high as 168 NTU and still meet the water quality standard of a delta of not more than 10 NTU. As discussed above, the 99th percentile value is 90 NTU. Therefore, there is virtually no potential for the discharge to cause an instream exceedence of the water quality standard for turbidity, and a permit condition for turbidity reporting in the outfall is not supportable.

EPA points out on page 37 of 71 of the Fact Sheet that even if Fraser's data demonstrates compliance with the state turbidity standards, that may be due to Fraser's sampling location 1500' downstream. That has been the sampling location for many years, and there is insufficient basis to change it. The EPA inspection report mentioned above indicates that the samples taken directly after mixing and the one taken at 1500 feet downstream show similar results, indicated that the present sampling point is representative of the effluent's effect on the receiving water.

2.2 FRASER COMMENT:

Page 23 of 24 (Special Condition I.G.4 – Visible Plume) – This condition reads “The permittee shall identify and remove the source of the visible plume in the discharge from Outfall 018 to the Androscoggin River.” The Fact Sheet at pages 36-40 discusses the combined topic of “Turbidity and Visible Plume”. This requirement is unfounded and should be deleted.

- No designated use is impaired when a lighter-colored plume is visible on occasion.
- There is no basis for this condition based on presumed turbidity exceedances, as discussed in length above.
- To the extent that the visible plume is attributable at least in part to the entrained air – EPA's own observations confirm that the discharge is “highly aerated” (see Fact Sheet at page 38) – there is no basis to require removal of a plume, as it violates no water quality standard.
- Further, the process of filtering the incoming water removes particulate and color from the river water. The actual paper-making process also tends to remove the natural color present in the river water by unintentionally retaining the color bodies in the paper substrate along with the intentional retention of the inorganic fillers used to give the paper its required optical properties such as opacity, brightness and shade. It is this color removal and entrained air that imparts a lack of or lightness of color in the effluent plume as it enters the darker receiving water (i.e., the effluent is simply lighter in color than the

ambient river condition), so no water quality issue is raised. Cf., N.H. Code of Admin. Rules, Env-Wq 1703.10.

In sum, no water quality concern is raised when a lighter-colored plume intermittently appears, and EPA has no basis to include a permit requirement to study it or to remove it.

On September 23, 2008, after the close of the public comment period, Fraser submitted the following additional comment:

There is no basis for EPA to require removal of the visible plume, as there is no water quality or discharge limitation issue. We have, however, given further thought to this issue, and we would suggest that you consider the following modifications to the draft permit provision in special condition G.4:

The permittee shall identify and address as necessary ~~remove the source of~~ the visible plume in the discharge from Outfall 018 to the Androscoggin River, to the extent that the plume impairs designated uses.

2.3 NHDES COMMENT:

Page 23, special condition G.4., the requirement to "identify and remove the source of the visible plume from outfall 018 to the Androscoggin River." It may be that the visible plume is due to the entrainment of air in the outfall pipe as it drops the approximately twenty feet from the lagoon to the river, in which case there would be no reason to remove the source. This special condition should be written to reflect this possibility. As you know, in some NPDES permits that have effluent dissolved oxygen (minimum) limits permittees install cascades that will cause the entrainment of air in the discharge.

After the close of the public comment period, NHDES submitted the following additional comment in a letter dated September 25, 2008, to David Webster, USEPA:

This letter is a follow up to our meeting on September 18, 2008 concerning the Fraser Paper NPDES Permit. During our meeting, you requested interpretation by the Department of Environmental Services (DES) of New Hampshire Surface Water Quality Regulations, Env-Wq 1700, concerning the "visible plume" in the Androscoggin River caused by the Fraser paper discharge and whether, if the plume is predominantly caused by entrained air or the absence of color, this would constitute a violation of Env-Wq 1700. Our interpretation is presented below.

As background, Fraser paper has stated that the source of the "visible plume" is predominantly caused by:

- a. Entrained air from the treatment process and discharge to the river.
- b. Removal of color during the paper making process. The Androscoggin River water is highly colored and, therefore, color has to be removed during the paper making process to manufacture high quality paper, thus the discharge has less color than the river.

The visible plume may also contain other substances, since the exact composition of the plume has not been fully determined. Please note that during our meeting, DES also recommended that the NPDES Permit for Fraser contain provisions to require analysis of the treatment plant effluent to determine the exact nature of the “visible plume.”

The question that has been raised is essentially: If the visible plume is predominately some combination of entrained air or decolored river water, would this constitute a violation of New Hampshire Surface Water Quality Regulations, Env-Wq 1700. Our assessment concerning the three most pertinent sections of Env-Wq 1700 is presented below:

- Env-Wq 1703.07, Dissolved Oxygen, specifies minimum dissolved oxygen levels for Class B waters. “Entrained air” contains dissolved oxygen at levels that would meet these standards. The presence of more oxygen or air than required does not constitute a violation of this standard.
- Env-Wq 1703.10, Color, states that “Class B waters shall contain no color in such concentration that would impair any existing or designated uses, unless naturally occurring.” If all or some portion of a visible plume is predominately caused by a reduction in color from the original river water by processing of the river, this is not a violation of Env-Wq 1703.03.
- Env-Wq 1703.03 General Water Quality Criteria. Within this section, Env-Wq 1703(c)(1)(c) and (e) are most applicable to this situation. To paraphrase these sections: “(1) All surface waters shall be free from substances in kind or quantity which... (c) Produce odor, color, taste or turbidity which is not naturally occurring and would render it unsuitable for designated uses;... Or (e) Interfere with recreational activities.” A visible plume caused by the presence of entrained air or a reduction of color caused by processing would not constitute a violation of this standard.

In summary, it is the DES position that a “visible plume” caused by either entrained air or less color than the river water would not constitute a violation of Env-Wq 1700 and does not render the water unsuitable for designated uses.

2.1 – 2.3 RESPONSE:

Before responding in detail, it is helpful to set the context. A visible plume emanates from Outfall 018 to the Androscoggin River. The plume is poorly characterized and may consist of some combination of turbidity, color, and/or aeration. Three related but distinct NH water quality standards are at issue: 1) the narrative water quality standard for visible floating substances and aesthetic criteria, 2) the numeric water quality standard for turbidity, and 3) the narrative water quality standard for color. See Env-Wq 1703.03(c) (1) (b), (c), and (e) (“All surface waters shall be free from substances in kind or quantity which . . . float or foam, debris, scum or other visible substances . . . [or] . . . [p]roduce odor, color, taste or turbidity which is not naturally occurring and would render it unsuitable for its designated uses; . . . [or] [i]nterfere with recreational activities.”); Env-Wq 1703.10(b) (“Class B waters shall contain no color in such concentrations that would impair any existing or designated uses, unless naturally occurring.”); Env-Wq

1703.11(b) (“Class B waters shall not exceed naturally occurring conditions by more than 10 NTUs.”).

Observations by EPA staff indicate the discharge from the Gorham paper mill treatment plant creates a distinct visible plume along the shore of the Androscoggin River. This plume was visible during the EPA Compliance Sampling Inspection conducted on January 19, 2006, as well as the previous year during the facility site visit (D. Webster and N. Handler, site visit, Feb. 23, 2005) and most recently, during the facility site visit conducted on October 10, 2007. The Sampling Inspection report from the January 19, 2006 inspection notes that “the discharge is highly aerated and causes a visible effluent plume along the shore of the river.” Regarding the final effluent at Outfall 018, the following information was provided in this report: the effluent “appeared ‘clear’ in color. However, upon close observation there were some whitish colored colloidal particles. The turbidity analysis data of 34.1 NTU for the sample confirmed the turbidity observation.”

It is unclear whether the reduced turbidity levels reported by Fraser Papers reflect an overall reduction in the turbidity levels in the discharge from the paper mill, reflect the effects of mixing and dilution provided by the Androscoggin River, or are a combination of both factors.

However, EPA is concerned about the visible plume caused by the discharge from Outfall 018, even if the plume does not show high levels of turbidity, as the permittee claims. The visible plume restricts the required uses for swimming and other recreational purposes in the Androscoggin River, both within the plume itself and also nearby. As stated in the Fact Sheet, the designated uses of Class B waters include swimming, fishing and other recreational purposes, and as noted above, the NH WQS require that surface waters shall be free of substances that “[p]roduce odor, color, taste or turbidity which is not naturally occurring and would render [the water] unsuitable for its designated uses.”

The permit requirement for monitoring of turbidity is valid in order to gain further evidence to determine whether the discharge causes, has the reasonable potential to cause, or contributes to an excursion above a numeric or narrative criterion. This is supported by Section 308 of the CWA, which grants EPA broad authority to require NPDES permittees to monitor “at such locations [and] at such intervals” as EPA shall prescribe, and to “provide such other information as [EPA] may reasonably require,” “whenever [it is] required to carry out the objective of [the Act].” 33 U.S.C. § 1318(a). Similarly, under section 402, the EPA has broad powers to impose NPDES permit conditions “to assure compliance with” effluent limitations required by the CWA, including authority to “prescribe conditions for [NPDES] permits . . . including conditions on data and information collection, reporting, and such other requirements as [EPA] deems appropriate.” 33 U.S.C. § 1342(a)(2). See *In re City of Moscow*, 10 E.A.D. 135, 170-71 (EAB July 27, 2001).

EPA has not included numerical turbidity limits in the draft permit since there is not enough information to determine if the source of the visible plume is indeed turbidity.

EPA believes the cause may be a combination of turbidity, color, and/or aeration. Therefore, instead of requiring effluent limitations for turbidity, the draft permit requires monitoring for turbidity, along with a requirement to remove the visible plume.

It is anticipated that removal of the visible plume will require the permittee to determine its source, assess technologies to remove the visible plume, implement the technology, and confirm its effectiveness. Thus, a clarification has been added to the permit to require the identification of the cause of the visible plume as an initial step, unless the permittee moves directly to the successfully removing the visible plume by using a diffuser or another physical means. The Part I.G.4 of the final permit now states, “The permittee shall identify and remove the source of the visible plume in the discharge from Outfall 018 to the Androscoggin River. As an initial step, the permittee shall determine the source of the visible plume unless the visibility is removed by a diffuser or other physical means.” Additionally, to address NHDES’s comment concerning visibility due to air entrainment and color reduction, the following requirement has been added to the final permit in Part I.G.4 as well, “The component, if any, of plume visibility consisting of air or reduction in color (from the original river water by processing of the river) need not be removed.”

The sampling location shall be representative of the discharge through Outfall 018. See response to comment 2.4, below, concerning sampling location in the final permit for Outfall 018.

Finally, EPA is not required to respond to Fraser’s additional comment submitted after the close of the public comment period. Nevertheless, EPA has in its discretion considered the late comment, and provides the following response: EPA disagrees with Fraser’s proposed revision, because it is excessively vague and because it would inappropriately defer a water quality standards determination.

EPA has considered the above-noted comments made by NHDES both during the public comment period and after the public comment period and has made the above-noted changes in the final permit which are consistent with the State’s comments.

2.4 FRASER COMMENT:

Page 5 of 24 (Footnote 1) – Moreover, the “end-of-pipe location” for sampling from Outfall 018 is not feasible, since the pipe is situated in a way that precludes any easy or, most importantly, safe manner of sampling from that location. Beginning February 1, 2004, Fraser implemented a safety program of Full Compliance, Full Commitment to every employee. See copy, Attachment J. This program identified OSHA concerns with the sampling location near the paper mill discharge pipe in the river. OSHA prescribes in general requirement 1926.1051(a) that a stairway or ladder shall be provided at all personnel points of access where there is a break of more than 19 inches or, and no ramp, runway, sloped embankment, or personnel hoist is provided. From the top of the bank down to the river’s edge is a drop of ~20’; a very steep bank. Given these difficult conditions – especially during the winter months – it is not practical to install and maintain any sort of ladder or other means of access to

the outfall (which, of course, is under water much of the year anyway). NHDES was notified on May 11, 2004 that we would no longer be able to sample at that location. The current downriver sampling site is the closest accessible point that meets these OSHA requirements. (Also, the end of the discharge pipe from the parshall flume is physically located on another property owner's land. Fraser has an easement across that land for the discharge pipe, but that easement does not permit regular monitoring from that location).

2.4 RESPONSE:

The draft permit required end-of-pipe sampling at Outfall 018 for turbidity and temperature. EPA is not convinced that a single sampling event showing similar in-stream turbidity levels at Outfall 018 and a point 1500 feet downstream demonstrates that sampling at the downstream location will generally be representative of the 1500 feet between the outfall and the sampling point.

However, the permittee insists that the end-of-pipe sampling at Outfall 018 is not feasible. Therefore, the permit shall require the permittee to sample Outfall 018 effluent for turbidity and temperature at the next accessible sampling location upstream of Outfall 018. This is the point of discharge from the final treatment pond to the outfall pipe (at the Parshall Flume), prior to mixing with the river. Further, the permit requires turbidity and temperature sampling at the current downriver sampling site identified by the permittee in the above comment.

Obtaining representative samples of the discharge through Outfall 018 is important in order to assess the impact of the discharge on the receiving water. The samples collected at the Parshall Flume shall be considered representative samples of the discharge. Sampling of the temperature at the downriver sampling site shall provide additional information concerning the impact of the discharge temperature on the temperature of the receiving water. All of this information will be useful to EPA in assessing the impact of the facility's discharge and for development of a new permit for this facility in the future.

3.0 TEMPERATURE

3.1 NHDES COMMENT :

Page 1, temperature limits. Based on the comments that we received from the NH Department of Fish & Game, we believe that temperature limits are not necessary. Measurement of the temperature and calculation of the predicted river temperature increase (PRTI) would suffice to demonstrate that our water quality standards are met with regard to temperature.

3.2 FRASER COMMENT:

Page 3 of 24 – There is currently no temperature limit for the Gorham Paper Mill, and none is justified in the new permit. EPA further acknowledges that there is no reasonable potential for an exceedance of water quality standards for temperature. (See page 29 of 71 of the Fact Sheet.) This may explain why neither NH DES or NH Fish and Game Department is urging that a temperature limit should be required.

EPA's including of a temperature limit is purely technology-based. Temperature is not a pollutant of concern here and there is no basis for applying best professional judgment (BPJ) for the Gorham Mill discharge.

3.1 & 3.2 RESPONSE:

The Clean Water Act requires EPA to impose technology-based requirements and water quality-based requirements. See CWA §§ 301(b)(2)(A), 301(b)(1)(C); 40 C.F.R. §§ 122.44(a)(1), 122.44(d). These are distinct requirements.

The comments appear to rely on the assumption that technology-based requirements are only necessary if a water quality standard might be violated. However, such an assumption is incorrect. "Technology-based treatment requirements under section 301(b) of the Act represent the minimum level of control that must be imposed in a permit issued under section 402 of the Act." 40 C.F.R. § 125.3(a). Additional or more stringent water quality-based requirements are imposed when necessary to meet water quality standards. CWA § 301(b)(1)(C); 40 C.F.R. § 122.44(d).

Technology-based limits for heat are appropriate in this instance. For heat (a nonconventional pollutant), EPA must "require application of the best available technology economically achievable . . . which will result in reasonable further progress toward the national goal of eliminating the discharge of all pollutants." CWA § 301(b)(2)(A); *see also* 40 C.F.R. § 125.3(a)(2)(v)(B). The temperature effluent limits in part I.A.1 of the permit are technology-based limits. *See* Fact Sheet at 29. Consequently, they apply even though EPA agrees that the present record does not indicate a reasonable potential for the discharge to exceed water quality standards for temperature, after dilution. *See id.* at 29.

3.3 FRASER COMMENT

Fraser states that it is continuing to work to reduce its water use and reduce the amount of fresh water used in its processes. If the volume of water used decreases, the temperature of the resulting effluent would increase. Temperature limits would be a disincentive to water conservation.

On September 23, 2008, after the close of the public comment period, Fraser submitted the following additional comment:

With respect to the temperature limit, it appears that EPA is "reaching" to apply a strict temperature limit for the first time in this permit. We appreciated your willingness to think about this further. At your suggestion we have looked at a heat input-type approach, and we have taken a crack at proposing one. We would appreciate your taking a look at the attached.

3.3 RESPONSE:

EPA does not agree with the permittee that just because it plans to conserve water in the future, it should be exempt from technology-based effluent limits. However, EPA

endorses the goal of water conservation and has revised the permit to express technology-based effluent limits for heat in a manner that will not discourage water conservation. Based on current operations, including water use, the temperature limits in the permit are an appropriate means of expressing the site-specific BAT-based effluent limits for heat. EPA agrees that decreasing the volume of water while keeping the heat load the same would increase the temperature of the discharge. However, the same BAT-based effluent limits contained in the draft permit can be expressed in British Thermal Units (BTUs) instead of in degrees of temperature. Because the BTU is defined in terms of a fixed quantity of water, if the volume of water decreases but the heat remains the same, the temperature may increase but the BTUs will remain constant. Therefore, the BTUs more accurately represent the actual pollutant (heat) that is discharged.

Expressing a heat limit in BTUs has two advantages over a temperature-based limit. First, a BTU-based limit enables the permittee to hold its heat output constant but reduce water flow (a beneficial goal) without exceeding its technology-based effluent limits for heat. Second, a temperature-based limit carries the risk that the permittee could actually increase the amount of heat discharged, but comply with its limit by diluting the heat with more water. Therefore, EPA has revised the final permit's heat effluent limits and converted them to BTUs. On September 23, 2008, Fraser submitted a "Proposal for Quantifying Heat Load in Outfall 018" which included calculations of heat load based on mass of water discharged, ambient temperature, and discharge temperature. EPA considered the calculations, but does not agree on the use of minimum recorded temperatures to calculate the maximum daily heat load. Therefore, EPA has used the raw data from the past year (October 2007 – September 2008), to determine the maximum daily heat load discharged from the facility based on current operations. EPA understands that the facility is currently operating only three (3) paper machines and anticipates operation of all five (5) machines in the future. Therefore, the maximum of the daily heat loads calculated for current operations was multiplied by a factor of 5/3, to take into consideration the heat load contribution from all five paper machines. These maximum daily heat load effluent limitations are included in Part I.A.1 of the final permit as 1595 MMBTU/day (June 1st – September 30th) and 2499 MMBTU/day (October 1st – May 31st).

These heat load limits replace the temperature limits in the draft permit (93°F and 90.2°F, maximum daily and monthly average, respectively, during June 1st – September 30th, and 79.9°F and 74.4°F, maximum daily and monthly average, respectively, during October 1st – May 31st). The final permit also requires reporting of the monthly average seasonal heat loads and of the seasonal monthly average and maximum daily temperatures, without limits. This shall ensure the temperature of the discharge meets technology-based limits, even if the flow through Outfall 018 is reduced.

However, if the permittee reduces the flow through Outfall 018 and the temperature of the discharge consequently increases, the discharge must still meet water quality standards. The heat limits, expressed as heat load, have been included in the permit based on the assumption that if the temperature of the discharge increases significantly, the volume of the discharge is smaller, and thus the discharge should require the same

dilution as a larger volume of water at a lower temperature. The maximum daily heat load limits in BTU's were used to evaluate compliance with NH water quality standards based on the potential reductions in water use at the facility, as discussed below.

A plot of the relationship between flow and change in temperature, during the summer and winter months, shows a direct relationship between change in temperature and flow.⁷ The plot assumes constant heat load, minimum recorded ambient river temperatures (59°F in the summer and 32.7°F in the winter), and low river flows (1,336 cfs) based on historical data from the USGS Gorham gauging station (#01054000). EPA used the 7Q10 (which includes a factor of 0.9 based on NH Surface Water Quality Regulations⁸) and then further reduced the flow by half in order to estimate mixing conditions. Based on these assumptions, the river would experience no greater than approximately a 1.1°F increase in temperature during the summer and a 1.5°F increase in temperature during the winter.

As explained in the Fact Sheet, as part of the development of the previous permit, the New Hampshire Fish and Game Department determined that a temperature increase of 2°F in the summer and 4°F in the winter would be adequately protective. The calculated increase for the facility of 1.1°F during the summer and 1.5°F during the winter would be well below these recommendations. EPA also consulted the EPA *Gold Book*, and determined that avoidance of a thermal plume by most species of fish is not generally expected until warmer temperatures exceed preferred temperatures by 1.8°F to 5.4°F. An increase of 1.1°F during the summer and 1.5°F during the winter would not exceed these recommended temperatures either. Therefore, EPA does not believe there is a reasonable potential for the discharge to exceed water quality standards for temperature, with dilution, even if the flow from the facility is drastically reduced and the temperature of the discharge is therefore substantially increased. Therefore, the technology-based temperature effluent limitations would still meet water quality limits even if the facility reduces the flow, as long as the total heat load does not increase.

Therefore, the final permit requires the above calculated maximum daily heat load limits, expressed in BTU's, in place of temperature limits, and a requirement to report the seasonal temperatures and the average monthly heat load. These changes have been made to the table at Part I.A.1 and a footnote for heat load calculation has been added in Part I.A.1, footnote 14.

3.4 FRASER COMMENT

Fraser states that the past performance of the mill will not be an accurate guide for what thermal discharge is expected going forward.

⁷ Figure 1 - Flow vs. Change in Temperature, Nicole Kowalski, September 24, 2008.

⁸ PART Env-Wq 1705 FLOW STANDARDS, Env-Wq 1705.01 Assimilative Capacity: "Except for combined sewer overflows where 99 percent of the assimilative capacity shall be used to determine compliance, not less than 10 percent of the assimilative capacity of the surface water shall be held in reserve to provide for future needs."

3.4 RESPONSE:

As a general matter, the goal of the CWA is to eliminate the discharge of pollutants into waters of the United States. *See* 33 U.S.C. §§ 1251(a)(1) (“[I]t is the national goal that the discharge of pollutants into the navigable waters be eliminated by 1985”), 1311(a)(1) (“Except as in compliance with this section and [other] sections . . . of this title, the discharge of any pollutant by any person shall be unlawful.”), 1311(b)(2)(A)(i) (for nonconventional pollutants, EPA “shall require application of the best available technology economically achievable for such category or class, which will result in reasonable further progress toward the national goal of eliminating the discharge of all pollutants”).

The relevance of Fraser’s historical discharges here is not that its past discharge establishes an inalienable right to continue to discharge that level of heat, but rather that the past discharges are useful in determining the Best Available Technology. In this case, EPA did not determine that BAT would require installation of additional technology to reduce heat discharge, such as cooling towers, as other pulp and paper mills in northern New England have done in recent years. *See, e.g.,* http://findarticles.com/p/articles/mi_qa3636/is_199610/ai_n8739394 (Pulp & Paper. Oct. 1996; explaining that Georgia-Pacific Corporation’s Woodland, Maine pulp and paper mill, which then produced approximately 532,000 tons per year of kraft pulp and free-sheet, installed three cooling towers in 1996). Rather, based on its evaluation of this particular facility, EPA determined that the BAT is the facility’s existing system, but operated at the site-specific best available performance levels. *See* Fact Sheet at 29.

In order to determine that site-specific best available performance, EPA employed two different statistical methods specifically recommended by the NPDES Permit Writer’s Manual. *See* NPDES Permit Writer’s Manual at 73-74; Fact Sheet at 29-31. As explained in the Fact Sheet, after performing the calculations, EPA determined that, given the particular statistical profile of Fraser’s operations, these two methods would result in inappropriate permit limits. *See* Fact Sheet at 29-30; *see also* NPDES Permit Writer’s Manual at 73-74 (“Permit limits are generally set at the upper bounds of acceptable performance. . . . If permit limits are set too lenient relative to the long-term average, a discharger not complying with expected performance will not exceed the limits. If permit limits are set too stringently, a discharger that is complying with expected performance may frequently exceed the limits.”). Instead, EPA selected the maximum observed values (the 100th percentile). By definition, this performance is achievable (since the facility has achieved or bested it 100% of the time) and the costs can be reasonably borne by the facility (since the facility has already been performing at this level). EPA has used this method for determining site-specific temperature BAT limits at another New Hampshire paper mill, Wausau Paper Printing & Writing; as it turns out, the temperature limits generated by this method at Fraser (before mathematical conversion to BTUs) are nearly identical to (although on balance slightly less stringent than) those generated for Wausau. *See* NPDES Permit No. NH0001562, Statement of Basis, at 3-7 (Aug. 16, 2007) (employing same methodology and generating the following temperature limits: winter average monthly - 73° F, winter maximum daily –

82° F, summer average monthly – 89° F, summer maximum daily – 94° F); *see also* NPDES Permit Writer’s Manual at 71 (relevance of BPJ permits for similar facilities).

Of course, in certain circumstances, it may be appropriate to modify a NPDES permit to reflect substantial alterations or additions to a permitted facility. *See* 40 C.F.R. § 122.62(a)(1). If Fraser makes such changes and submits a request for a permit modification, EPA will consider it when received. However, at this time, the final permit requires heat limits expressed in BTU’s, as explained in response to comment 3.3, above.

3.5 COMMENT:

NHDES states that measurement of the temperature and calculation of the predicted river temperature increase (PRTI) would suffice to demonstrate that New Hampshire’s water quality standards are met with regard to temperature.

Fraser states that reporting of PRTI is unnecessary, but that it would accept a PRTI reporting requirement “(1) if EPA were to agree that a temperature limit is not warranted, and (2) if EPA ultimately determines that it needs to monitor the thermal discharge via the PRTI reporting requirements.”

3.5 RESPONSE:

As explained above, technology-based requirements and water quality-based requirements are distinct requirements. Based on a simple calculation from historical data, EPA does not currently have reason to believe there is a reasonable potential for the discharge (with dilution) to cause or contribute to an excursion above water quality standards for temperature. *See* Fact Sheet at 29. The requirement to calculate and report PRTI is designed to ensure and verify that New Hampshire’s water quality standards are met with regard to temperature. This is particularly relevant now that EPA has revised the technology-based effluent limits to be expressed in BTUs. *See* Fact Sheet at 29, 32-33; 40 C.F.R. §§ 122.44(i)(1)-(2); *see also* NPDES Permit Writer’s Manual at 138 (regarding additional monitoring requirements). The requirement for the measurement of the temperature and calculation of the PRTI is retained in the final permit.

3.6 FRASER COMMENT:

Fraser notes that its ability to calculate PRTI is dependent on the USGS transmitting flow data from the Gorham gauging station. Fraser requests that if there is a stoppage of flow data, that must not be considered a violation for that reporting period.

3.6 RESPONSE:

EPA agrees with this comment. The permittee shall not be responsible in the case that USGS does not provide flow data for the USGS Gorham gauging station (#01054000). However, this reporting requirement was not required previously in tables of the draft permit. Therefore, since there are appropriate No Data Indicator codes (NODI) for use when submitting the discharge monitoring results on those occasions when sampling did not occur, EPA has added the daily minimum river flow rate reporting requirement to the final permit at Part I.A.1 to allow for this reporting. The NODI codes are provided in the

annual NPDES Permit Program Instructions for the Discharge Monitoring Report Forms (DMRs), (see Attachment E to these DMR instructions).

4.0 pH

4.1 FRASER COMMENT:

Page 2 of 24 – We appreciate that the draft permit allows for a written request to change the permitted pH limit range to be no less restrictive than the applicable effluent guideline (5.0 to 9.0 – See Section I.G.3), and we also understand that New Hampshire law prescribes a water quality standard for pH of 6.5 to 8.0. However, NH RSA 485-A:8, II provides that the pH range for Class B water shall be 6.5 to 8.0 “except when due to natural causes” (emphasis added). See also Attachment K, DES Procedures for Adjusting pH Limit. Inasmuch as this stretch of the Androscoggin River has demonstrated to have a lower pH than 6.5, Fraser should not be held to that standard. (For comparison, the downstream paper mills in the State of Maine are allowed the full pH range of 5.0 – 9.0 allowed by the national effluent guidelines.)

Attachment L is a tabulation of the ambient pH from 2002 to the present above the Gorham mill. That data shows an upstream pH level almost always below 6.5 and most commonly below 6.0 since 2004. The mean upstream pH level since April of 2004 is 5.9. The City of Berlin in 2001 demonstrated to the satisfaction of EPA and DES that the pH limit of 6.0 in the Berlin POTW permit. See Attachment M October 2001 correspondence from DES and EPA Re City of Berlin POTW pH Limit. The same adjustment should be made now in Fraser’s permit.

An unintended consequence of including permit limits that are known to be more stringent than the receiving water is how the reported data can be misunderstood. In this instance, these “lower-than-permitted” pH values show up in national databases as permit violations. An example of how this data is then portrayed is in the October 2007 U.S.PIRG Education Fund report *Troubled Waters, An Analysis of 2005 CWA Compliance*, in which Fraser was shown to have exceeded its permit limits in 12 out of 12 reporting periods because of the pH limit remaining at 6.5. This occurred despite communication from DES and EPA that excursions of this limit at Outfall 010 would not be considered violations if the ambient river pH was lower than the limit. See Attachment N, an October 3, 2003 memorandum from Tammie Lavoie, formerly employed by Fraser, re the DES and EPA position on the pH limit for Outfall 010. This unintended and unfair public notice not only damages the mill’s public image in the community where it operates but could have a deleterious affect on the mill’s ability to do business. Fraser has made significant efforts over the term of its ownership of the mill to improve environmental performance by reducing water usage decreasing raw material losses to the sewer, use of recycled fiber, obtaining certification under the ISO14001 standard and the FSC standard. Many of our key customers use the criteria previously mentioned to determine if they will do business with Fraser. Publication of what appear as permit violations without an understanding of the full background of the issue can result in a misrepresentation of

the facility's environmental performance. This is a real potential problem for any business, and permit conditions must be written with this possibility in mind.

The draft pH limit should be changed to require a pH range of 6.0 – 8.0.

4.2 NHDES COMMENT:

Page 24, Part I.F., The standard state permit condition on pH, which applies to process wastewater outfall 018, should be added to the bottom of Part I.F. The language is repeated below for your information:

The pH range of 6.5 -8.0 S.U. must be achieved in the final effluent unless the permittee can demonstrate to NHDES-WD: (1) that the range should be widened due to naturally occurring conditions in the receiving water, or (2) that the naturally occurring source water pH is unaltered by the permittee's operations. The scope of any demonstration project must receive prior approval from NHDES-WD. In no case, shall the above procedure result in pH limits less restrictive than applicable federal effluent limitation guideline(s) published in the CFRs.

4.1 & 4.2 RESPONSE:

Permit conditions are written taking into consideration limits based on both the technology available to treat the pollutants (i.e., technology-based effluent limits), and limits that are protective of the designated uses of the receiving water (water quality-based effluent limits).⁹ While EPA strives to make its permit limits readily comprehensible to the public, in cases where there are complex interactions between effluent and ambient conditions, EPA cannot relax a water quality-based effluent limit on the basis that a third party might misunderstand its application. In this case, EPA has designed the permit to prevent exceedances of the NH water quality standards, while providing a mechanism for Fraser to show that it is not at fault for certain pH exceedances in its effluent.

As described in the comment from NHDES, above, Fraser must receive approval from NHDES – WD to widen the pH range, as described above in the comment from NHDES. The permittee must demonstrate to NHDES-WD: (1) that the range should be widened due to naturally occurring conditions in the receiving water, or (2) that the naturally occurring source water pH is unaltered by the permittee's operations.

Fraser submitted a letter report dated September 15, 2008 to NHDES, which included a completed pH demonstration study. On September 17, 2008, Fraser submitted a determination letter from NHDES that based on the pH demonstration study, if the pH minimum limits for Outfall 018 are reduced to 6.0 S.U., NHDES believes that the ambient pH standard range of 6.5 to 8.0 S.U. in the Androscoggin River will be met. Therefore the pH range in the final permit for Outfall 018 has been changed to 6.0 – 8.0 S.U. as a result of the demonstration study approved by NHDES.

⁹ See CWA §§ 301(b)(2)(A), 301(b)(1)(C); 40 C.F.R. §§ 122.44(a)(1), 122.44(d); U.S. EPA NPDES Permit Writers' Manual, p. 49.

Comments regarding pH conditions in permits issued to Maine facilities (which are of course not subject to the New Hampshire water quality standards) should be directed to the Maine Department of Environmental Protection.

4.3 FRASER COMMENT:

Outfall 010(a): Page 8 of 24 – We reiterate our comments on the pH limitations for Outfall 018 set forth above.

4.4 FRASER COMMENT:

Page 13 and 14 (note 2) of 24 – There is no reason to monitor for pH levels for the overflow of filtered water from Outfall 025. Further, as stated several times herein, Fraser should not be held to a more stringent pH limit than ambient levels.

4.3 & 4.4 RESPONSE:

As discussed in response to Comment 4.1 & 4.2, above, while EPA strives to make its permit limits readily comprehensible to the public, in cases where there are complex interactions between effluent and ambient conditions, EPA cannot relax a water quality-based effluent limit on the basis that a third party might misunderstand its application. In this case, EPA has designed the permit to prevent exceedances of the NH water quality standards, while providing a mechanism for Fraser to show that it is not at fault for pH exceedances in its effluent.

The discharge through Outfalls 010(a) and Outfall 025 must meet the State Water Quality limit for pH of 6.5-8.0 SU. However, since these discharges are non-process wastewater, the permittee is not required to submit a demonstration, as is required for process wastewater (as described in response to Comments 4.1 & 4.2, above). For non-process wastewater, the permittee may demonstrate compliance by showing the discharge pH was within 0.5 SU of the ambient upstream river water pH. This is specified in the permit in Part I.A.3, footnote 2 and Part I.A.2, footnote 6 (edited to be consistent with Part I.A.3, footnote 2), as follows:

The pH of the discharge shall be in the range of 6.5 to 8.0 Standard Units (SU) unless the upstream ambient pH in the Androscoggin River is outside of this range and is not altered by the facility's discharge or activities. If the permittee's discharge pH is lower than 6.5 SU the permittee may demonstrate compliance by showing that the discharge pH was either: (a) higher than, or (b) no more than 0.5 SU lower than, the ambient upstream river water pH. If the permittee's discharge pH is higher than 8.0 SU the permittee may demonstrate compliance by showing that the discharge pH is either: (a) lower than, or (b) no more than 0.5 SU higher than, the upstream river water pH. The sampling of upstream river water pH necessary to demonstrate compliance shall occur as close in time as possible, but not greater than 1 hour from the time during which the effluent pH is measured, to obtain concurrent measurements.

4.5 FRASER COMMENT

Outfall 10(b): Page 9 of 24 – We reiterate the comments on Outfall 010(a) immediately above.

4.5 RESPONSE

Upon further discussion, EPA and NHDES have determined that the discharge from Outfall 010b (filter backwash with addition of polymer) should be considered process water (See response to comment 4.3 & 4.4, above). Similar to the discharge from Outfall 018, if the pH minimum limits for Outfall 010b are reduced to 6.0 S.U., NHDES believes that the ambient pH standard range of 6.5 to 8.0 S.U. in the Androscoggin River will be met. Therefore, the pH range in the final permit for Outfall 010b has been changed to 6.0 to 8.0 S.U.

5.0 316(b) Applicability

5.1 FRASER COMMENT:

Fraser's water intake system for the Gorham plant is not a cooling water intake structure under §316(b) of the Clean Water Act. Thus, all of the analysis of EPA's authority to require BTA is unfounded. At design capacity of the filter plant, which is virtually unattainable now due to the curtailment of operations since the close of the pulp mill, the flow through the gate structure is only 3% of the mean annual flow of the Androscoggin River. This is well below the 5% flow threshold that is specified in the 316(b) Phase II rule for the application of entrainment performance standards. Under current operating conditions, the intake flow is an even smaller percentage of the river flow. At 17 MGD, the flow through the gate structure is about 1% of the mean annual flow.

Flow velocity through the filter beds is less than .005 feet per second, which is well below the threshold established in the §316(b) rules, if those rules applied to this facility. Even at the design flow rate of 37.5 MGD (more than double the amount currently used, now that only the paper mill exists), the velocity at the gate house is .53 fps, barely in excess of the .50 limit used by EPA. At 17 MGD, the velocity through the gate house is .23 fps.

Less than 1% of the water withdrawn through the water intake structure and filtered through the filter plant is actually used for cooling purposes and discharged as such. This falls far below the basic threshold requirement of the §316(b) rule, namely that at least 25% of the water is used for cooling purposes.

In summary, Fraser believes that the application of §316(b) regulations to this intake is not reasonable, considering the very low cooling water flow, the low percentage of river flow, and the likelihood of minimal impact on impinged and entrained organisms. Fraser requests the so-called CWIS requirements be deleted from the draft permit.

On September 23, 2008, after the close of the public comment period, Fraser submitted the following additional comment:

Last, Fraser has taken a preliminary look at collecting the small amount of cooling water that is not currently reused to determine the feasibility of routing that to the process water stream. At first blush, it appears that this is a feasible approach that would avoid the Section 316(b) issue altogether. But Fraser needs an additional week or so to understand the ramifications and potential cost of this change. (It is still surprising and disappointing that EPA does not even consider a de minimis threshold of 316(b) application. Even if it is possible to re-route the very small amount of cooling water at Fraser's Gorham mill, it is not reasonable that the company should have to go to such expense for such little environmental or natural resource benefit. If a feasible solution is not possible on this, Fraser will continue to assert its position that 316(b) does not apply here.)

5.1 RESPONSE

1. Legal framework

The comment appears to be based on a series of misunderstandings regarding Section 316(b) and the now-suspended Phase II Rule.

First, the Phase II Rule is not in force. On January 25, 2007, the United States Court of Appeals for the Second Circuit issued a decision in litigation challenging the Phase II Rule. *See Riverkeeper, Inc., et al. v. United States EPA*, 475 F.3d 83 (2d Cir. 2007) (“*Riverkeeper II*”). The Court of Appeals held that certain provisions of the Phase II Rule were either inadequately explained, inconsistent with Section 316(b) of the Clean Water Act, and/or inconsistent with the requirements of Section 4 of the Administrative Procedure Act, 5 U.S.C. § 553, and remanded significant portions of the Phase II Rule to the Agency. On July 9, 2007, EPA published a notice in the Federal Register formally suspending the Phase II Rule. See 72 Fed. Reg. 37,107 (July 9, 2007). This notice suspended 40 C.F.R. Part 125 Subpart J except for section 125.90(b), which provides that “[e]xisting facilities that are not subject to requirements under [Part 125] must meet requirements under section 316(b) of the CWA determined by the Director on a case-by-case, best professional judgment (BPJ) basis.” The “suspension provides a clear statement by the Agency that the existing Phase II requirements (with the exception of [section 125.90(b), which was] unaffected by the *Riverkeeper* decision . . .) are suspended and are not legally applicable.” 72 Fed. Reg. at 37,108. *See also* Fact Sheet at 49 & n.18. While the Supreme Court has agreed to review the *Riverkeeper II* decision, the Phase II Rule remains suspended as of the date of this final permit decision and likely will remain suspended for some time.

Second, the Phase II Rule, even when it was in effect, did not apply to paper mills. The Phase II Rule applied to facilities that generate electric power as their primary activity. 40 C.F.R. § 125.91(a)(3) (suspended); 69 Fed. Reg. 41,576, 41,578 (Preamble to Final Phase II Rule) (“[M]ost existing manufacturing facilities . . . are not subject to this rule. Those facilities have different characteristics as compared to the large, power-generating facilities subject to today's rule. If an existing facility is a point source and has or is required to have an NPDES permit, but does not meet the applicability thresholds in

today's rule, it is subject to permit conditions implementing section 316(b) of the CWA set by the permit director on a case-by-case basis, using best professional judgment.”). Thus, even if the *Riverkeeper II* decision had never been issued, the Phase II Rule would not have applied to Fraser. Instead, as explained in the Fact Sheet, Fraser is subject to section 316(b) requirements developed on a BPJ basis. See Fact Sheet at 49 & n.18.

Third, the comment confuses the *definition* of a “cooling water intake structure” with the *applicability requirements* of a national categorical compliance standard. As noted above, the Phase II Rule would not have applied to Fraser Papers in any event. But even under that rule, the *definition* of “cooling water intake structure” contained no limitations based on intake flow, ratio of intake flow to receiving water flow, or percentage of intake flow used for cooling purposes. See 40 C.F.R. § 125.93 (suspended). Rather, such factors were used in the Phase II Rule to determine which substantive requirements of the Phase II Rule itself would apply. See 40 C.F.R. §§ 125.91(a) (suspended), 125.94(b)(2) (suspended). Indeed, in crafting the Phase I Rule for cooling water intake structures at new electric generating facilities (from which the definition of “cooling water intake structure” was adopted into the Phase II Rule), EPA explicitly distinguished between placing limitations in the definition of the term “cooling water intake structure” and placing those limitations in the applicability requirements of the rule itself. See 66 Fed. Reg. 65,256, 65,287 (Preamble to Final Phase I Rule). In short, the fact that the categorical requirements of the Phase II Rule (which, even if it had not been suspended, would not have applied to Fraser Papers anyway) only applied to a certain subset of CWISs, and left the remainder to EPA’s BPJ, does not support Fraser’s argument that its CWIS is “not a cooling water intake structure under §316(b) of the Clean Water Act.”

In sum, the Phase II Rule is not currently in force, never applied to paper mills, and did not purport to define non-Phase II facilities out of the Clean Water Act. Thus, it is legally irrelevant whether the design intake flow of Fraser’s CWIS, as a proportion of the mean annual flow of the Androscoggin River, is above or below the threshold in 40 C.F.R. § 125.94(b)(2)(ii)(B) (suspended); or whether the maximum through-medium design intake velocity as measured at various points is already below or only slightly exceeds the performance standard in 40 C.F.R. § 125.94(a)(1)(ii) (suspended); or whether the proportion of Fraser’s water withdrawal used exclusively for cooling purposes is above or below the threshold in 40 C.F.R. § 125.91(a)(4) (suspended).

2. Other considerations

As explained above, Fraser’s comment is incorrect as a matter of law, and EPA need not provide any further response. That said, EPA provides the following additional information.

Notwithstanding the fact that Fraser Paper’s CWIS is subject to section 316(b) and that the various thresholds identified in the Phase II Rule are legally irrelevant, it is true that Fraser’s intake flow is a relatively low proportion of the Androscoggin River’s flow, that the actual through-screen velocity at the gate house is generally below the velocities identified by EPA as protective of most fish species, and that the proportion of Fraser’s

water withdrawal used for cooling water purposes is a relatively small proportion. (Indeed, EPA reported all of these facts in the Fact Sheet, at pp. 57-60.) EPA explicitly took these factors into consideration in determining the BTA, as described below.

Proportion of river withdrawn by facility: The relevance of this factor is that, absent any other controls, withdrawal of a unit volume of water from a waterbody will result in the entrainment of an equivalent unit of aquatic life (such as eggs and larval organisms) suspended in that volume of the water column. Here, although the proportion of water withdrawn is *relatively* low, it is certainly cognizable under section 316(b), and EPA explained that the physical nature of the river in the vicinity of the CWIS and the intake canal itself may provide suitable spawning and nursery habitat. *See* Fact Sheet at 52-53. The 5% value that Fraser cites from the Phase II Rule was developed for a very specific purpose in that rule which has no relevance here. In the Phase II Rule, EPA required facilities withdrawing greater than 5% of the mean annual flow from freshwater rivers and streams to install entrainment controls that would “reduce entrainment of all life stages of fish and shellfish by 60 to 90 percent from the calculation baseline.” 40 C.F.R. § 125.94(b)(2) (suspended). In the Phase II Rule, EPA had decided not to require installation of such entrainment controls at facilities withdrawing 5% or less of the mean annual flow because, for purposes of the Phase II Rule, EPA determined that requiring such entrainment performance requirements at such facilities would not be cost-effective and would not offer benefits as high as requiring those entrainment performance requirements at facilities withdrawing a larger proportion of the waterbody. *See* 69 Fed. Reg. 41,576, 41,607 (Final Phase II Rule). Here, that type of reasoning does not apply. EPA is not requiring reduction of entrainment of all life stages by up to 90%. Instead, with respect to entrainment of eggs and larvae, EPA is requiring more modest steps: proper construction and maintenance of the CWIS to ensure that the intake is elevated above the bottom of the river inlet to prevent and/or reduce entrainment of demersal eggs, and reduction of unnecessary flow.

Through-screen velocity: Under reported conditions, the through-screen velocity of the bar rack at the Gate House is already below 0.5 fps, the velocity deemed protective; even under design intake flow, the through-screen velocity (0.53 fps) would only barely exceed that protective velocity. Therefore, EPA considers the permit requirement to maintain a through-screen velocity of no more than 0.5 fps to be easily achievable and to pose no hardship to Fraser.

Proportion of total water withdrawal used for cooling purposes: It is certainly true that a relatively low proportion of total water withdrawal at Fraser is used for cooling purposes—approximately 245,000 gallons per day out of a total 14.7 MGD average withdrawn (75,000 gallons per day used only for cooling and not reused as process water). EPA took this into consideration in its evaluation of closed-cycle cooling. *See* Fact Sheet at 62-63. At many facilities, conversion to closed-cycle cooling would maximize the reductions in adverse environmental impact. However, as EPA explained, precisely because of Fraser’s low proportion of total water withdrawal used for cooling purposes, the best-performing technology at this site would *not* be closed-cycle cooling, but rather capacity reduction via operational practices such as some combination of water

conservation, reducing or eliminating the discharge through Outfall 025, and/or restricting the gravity feed intake of water. *See* Fact Sheet at 63. Thus, EPA took this feature of Fraser Papers into consideration in determining BTA at Fraser Papers. The 25% threshold to which Fraser refers is irrelevant here. In the Phase II Rule, EPA had decided to limit the application of the rule's categorical requirements to facilities using 25% or more of water withdrawn for cooling purposes. However, that threshold was set not due to environmental or technology considerations that would be relevant here, but rather because EPA determined that threshold would cover most Phase II facilities (electric generation plants) and that Phase II facilities using less than 25 percent of water withdrawn for cooling would be most effectively addressed on a BPJ basis rather than by a national rule. These considerations are irrelevant in the context of the BPJ determination for Fraser Papers.

3. Alternate compliance method

At a meeting with EPA personnel on September 18, 2008, and in correspondence dated September 23, 2008, Fraser expressed interest in reusing its cooling water as process water. EPA typically considers water that is used for *both* cooling *and* manufacturing purposes to be process water, i.e., not cooling water. *See, e.g.*, 40 C.F.R. § 125.83 (Phase I Rule) ("Cooling water that is used in a manufacturing process either before or after it is used for cooling is considered process water . . ."); 66 Fed. Reg. 65,256, 65,278 (Dec. 18, 2001) (preamble to Final Phase I Rule). Although the Phase I Rule does not apply of its own force to Fraser, given the site-specific factors discussed above and in the Fact Sheet, EPA has determined that, at this facility, reuse of 100% of cooling water as process water would satisfy the requirements of section 316(b). Consequently, EPA has revised Part I.A.C of the final permit to allow an alternate compliance method instead of the requirements of Parts I.A.C.1-5.

As a result, Part I.C.2 of the permit has been clarified as follows:

At any time prior to the expiration date of this permit, the permittee may submit written certification, in accordance with 40 CFR 122.22, that the Pulp Mill CWIS has ceased operation and no further cooling water will be withdrawn from this CWIS. Cooling water consists of any water used for contact or noncontact cooling (including water used for equipment cooling, evaporative cooling tower makeup, and dilution of effluent heat content, but *not* including any such cooling water that was used in a manufacturing process either before or after it was used for cooling). After this operational change is verified by an EPA or NHDES inspection, and upon written approval from EPA, the permittee shall not be required to comply with the requirements of Part I.C.1-3. Unless and until the permittee received written approval from EPA, the permittee shall comply with all requirements of Part I.C.

Additionally, to give the permittee additional time to consider reuse of cooling water as process water, the final permit effective date has been extended to January 1, 2009. This change is noted on the first page of the final permit.

Finally, EPA is not required to respond to Fraser's additional comment submitted after the close of the public comment period. Nevertheless, EPA has in its discretion considered the late comment, and provides the following response: The alternate compliance method provided above, and the delayed effective date, respond to the thrust of Fraser's late comment. With respect to Fraser's argument that the volume of cooling water withdrawn is "de minimis," see above. With respect to Fraser's argument regarding cost-benefit analysis, conducting such an analysis is not required and, pursuant to *Riverkeeper II*, not authorized.

5.2 FRASER COMMENT:

Facilities downstream from Fraser have no permit requirements regarding Cooling Water Intake Structures. The imposition of controls on Fraser will force Fraser to expend capital that the other mills will not have to spend and incur operating costs that the other mills will not have to incur, again putting the Fraser mill in New Hampshire at a competitive disadvantage.

5.2 RESPONSE:

The fact that a permit issued to an unrelated facility in another state might not include certain requirements does not control a determination of the best technology available for minimizing adverse environmental impacts at Fraser.

The Clean Water Act requires EPA to ensure that the location, design, construction, and capacity of the facility's cooling water intake structures reflect the best technology available for minimizing adverse environmental impacts. *See* CWA § 316(b). These decisions are based on site-specific BPJ evaluations of the individual facility at issue. While EPA can and does consider whether the costs of a technology can be "reasonably borne" by a facility, maintaining Fraser Paper's competitive market position vis-à-vis other paper mills on the Androscoggin River (or elsewhere) is not EPA's role and not an appropriate consideration under section 316(b). Moreover, contrary to Fraser's impression, EPA applies section 316(b) to paper mills other than Fraser Papers, including in New Hampshire.

5.3 FRASER COMMENT:

The Tetrattech report referenced on page 55 of the Fact Sheet does not mention the filtration system through which all the intake water passes prior to distribution throughout the facility. This gravity media filter system would block the passage of fish eggs, larvae, and larger aquatic organisms to the process systems. These organisms would be returned to the river via the filter backwash system. Backwash water discharges through Outfall 010. Therefore, organisms drawn into the system would not be subjected to physical, chemical, or thermal stresses, and viability of these organisms is expected to be high.

5.3 RESPONSE:

EPA is aware of the presence of the filtration system (sand filters) through which all the intake water passes prior to distribution throughout the facility. The Fact Sheet states:

In the case of Fraser Papers, organisms entrained through the CWIS will likely be impinged on the sand filter before they can be transported to the paper plant in the water used for production and cooling. Therefore, physical stresses will likely be the predominant impact for any entrained organisms at the Fraser Papers facility.

EPA does not agree with the permittee that the “organisms drawn into the system would not be subjected to physical, chemical, or thermal stresses, and viability of these organisms is expected to be high,” and the permittee has provided no evidence to suggest that the viability of these organisms is expected to be high. See also Response to Comment 5.6.

5.4 FRASER COMMENT:

The Tetra Tech draft report notes that "most of the species noted present in the Fraser vicinity have demersal (i.e., benthic), adhesive eggs... this adaptation acts to reduce the likelihood that such eggs would be entrained, particularly at a facility such as Fraser with a relatively low velocity intake." Yet the proposed draft permit states (page 17 of 24, Section I. C. 2(a)) "The CWIS shall be designed, constructed, operated, and maintained with the intake elevated sufficiently above the bottom of the river inlet to prevent and/or reduce entrainment of demersal eggs..." Fraser believes that there is no demonstrated justification for an elevated intake. Moreover, dredging the intake canal presents another set of potential impacts that could well offset any benefit to reduced entrainment of demersal eggs.

5.4 RESPONSE:

EPA would like to clarify that the permit requirement to maintain the intake elevated above the bottom of the river inlet is not meant to require dredging of the entire intake canal. The permit is meant to require displacement of sediment within a limited area in close proximity to the intake, approximately 2 feet before and leading up to the intake. Since the river bed is approximately 14 feet in width at the intake, this amounts to only 28 ft² which must be maintained below the bottom of the intake. This could be achieved by removing the sediment from the canal or moving it away from this area without removing it from the canal. The chance of any potential environmental impacts due to the displacement of sediment is minimal because this area is small. The benefits of a lower sill to prevent entrainment of demersal, adhesive eggs and other benthic aquatic life outweigh any damage to the aquatic life that might be caused by displacing sediment in this limited area. Part I.C.2.a has been revised for clarification purposes as follows:

The CWIS shall be designed, constructed, operated, and maintained with the intake elevated sufficiently above the bottom of the river inlet to prevent and/or reduce entrainment of demersal eggs (eggs which sink or are deposited on the bottom) and larvae or other benthic organisms that may be present in the vicinity of the CWIS. The permittee shall inspect the intake on an annual basis and clear sediment buildup as necessary. For this purpose, the displacement of sediment is required in the area in close proximity to the intake, approximately 2 feet before and leading up to the intake.

5.5 FRASER COMMENT:

Section I.C.2(c) of the draft permit would require the installation of a screening technology at the Gate House. The capital cost of effective screening technologies, including "traveling" and "fixed" screens are in the range of \$200,000 or higher. Operational needs could increase operating costs by \$132,000 annually.

5.5 RESPONSE:

In evaluating costs under section 316(b), EPA examines two factors: (1) whether the costs of the technology can be reasonably borne by the facility, taking into account the technology-forcing character of the CWA; and (2) whether the best performing technology should be rejected as BTA in favor of another technology that achieves essentially the same benefits but has markedly lower costs. *See Riverkeeper II*, 475 F.3d at 99-101. In the Fact Sheet, EPA concluded that the costs associated with a 3/8" mesh barrier would be bearable by the facility. *See* Fact Sheet at 59-60. At that time, EPA did not identify any technologies that would achieve essentially the same benefits as a screen or mesh barrier but at markedly lower costs.

Although the comment presents the costs of the technologies themselves, the comment does not even suggest that Fraser cannot reasonably bear these costs, nor does it identify a technology that would achieve essentially the same benefits as a screen or mesh barrier but at markedly lower costs. Fraser had ample opportunity to provide such information. As noted above, Fraser submitted additional comments and data to EPA as late as September 23, 2008, and EPA, in its discretion, considered such late-submitted comments and data in developing the final permit. Notably, while the September 23, 2008 submission included a comment regarding section 316(b) limits, Fraser declined to provide financial information that would support an argument that the facility cannot "reasonably bear" the costs of CWIS technology, or a technology that would achieve essentially the same benefits as a screen or mesh barrier but at markedly lower costs.

Furthermore, the permittee states that the capital costs associated with "traveling" and "fixed" screens are in the range of \$200,000 or higher. The permit does not require traveling screens (which would indeed cost much more than a fixed screen or mesh barrier) at the facility. Furthermore, additional cost estimate data submitted by the facility on September 11, 2008, indicates that a barrier net would cost approximately \$30,000. This cost is in general agreement with other estimates of fixed screen costs EPA has seen. This is markedly lower than the original \$200,000 estimate originally mentioned. Therefore, the comment does not provide a basis for EPA to alter its conclusion.

Regarding operational costs, EPA is aware that a fixed screen barrier with an opening of 3/8 inch (approximately 9 mm) will require periodic maintenance to remove debris loading and biological growth on the screen. Since a basic fixed screen design is not likely to include an automatic mechanism to remove debris from the screen, periodic manual cleaning will be required. It is difficult to predict exactly how often the fixed screen barrier at Fraser's CWIS will require manual cleaning. Many factors will influence the rate of fixed screen or mesh barrier fouling. Among these factors at Fraser

are the season, the rate of biological growth on the screen, and the amount of fine silts that do not settle out of the water as it travels down the low energy intake canal. However, based on a review of fixed screen barrier technology in operation at other facilities, manual cleaning of the screen with a fire hose or similar water spray device may be needed as much as twice a week (Fish Protection at Cooling Water Intake Structures: A Technical Reference Manual. Chapter 6 Barrier Nets, EPRI, Palo Alto, CA. 2007. 1014934, EPRI 2007).

The intake is not located far from the facility, which EPA visited on October 10, 2007. Moreover, Fraser operators already inspect the trash rack daily, *see* Fact Sheet at 57, and the intake screen will be in close proximity of the trash racks. Taking this information into consideration, operational and maintenance costs are not considered to be prohibitive.

5.6 FRASER COMMENT:

The intake velocity through the trash rack has been estimated to be 0.53 feet per second, based on the filter plant design intake flow rate, or 0.23 fps at a 17 MGD intake flow. However, the true "intake screen" is the media filter bed, which has an active filtration surface area of 13,000 square feet (assuming 47 beds in operation), and the resulting intake velocity (through-bed flux) is less than 0.005 feet per second. The current operation, with as little as 9 beds in operation (active filtration surface area of 2478.42 square feet), has the potential through-bed flux of 0.006 fps. Since any fish that reach the filters will be returned to the river via the backwash operation, fish impingement is not expected to be an issue. Fraser, therefore, requests that the Section I.C. be eliminated.

5.6 RESPONSE:

EPA does not identify the media filter bed as the true intake screen of the CWIS. EPA maintains that the first (outermost) intake structure through which fish may be entrained (and not freely returned through) meet protective standards, to minimize the likelihood of fish entering the system at all. In this case, EPA has determined that the gravity feed design of the intake would prevent entrained fish from exiting the intake canal after passing through the trash rack, therefore the intake velocity is most appropriately calculated at the trash rack. Additionally, as stated in the Fact Sheet, "It is unlikely that they [fish] would survive the physical stresses imposed by being caught in the sand filters or being backwashed out of them." The intake water system, filter beds, and filter backwashing system were never designed to return fish to the river with minimum stress. Fraser has provided no site-specific information which supports the opinion that fish that are flushed down a 2,800 foot buried penstock pipe, stranded on a clogged filter bed and backwashed into a water return system would be able to survive. Therefore, Part I.C shall remain in the Final Permit. See also Response to Comment 5.3.

5.7 FRASER COMMENT

Section I.C.3 of the draft permit would require monitoring 3 times per week of any areas where there is potential for fish impingement. This is too frequent, since

historically, very few organisms have been observed on the trash racks or at the media filters.

5.7 RESPONSE:

In the absence of a systematic program by personnel trained to observe and record historical fish impingement at the Fraser CWIS, EPA is unable to verify the permittee's statement that very few organisms have been observed on the trash racks or at the media filters. As explained in the Fact Sheet, several fish species in the river school in low velocity habitats such as that provided by the facility's intake canal, and therefore adult and juvenile finfish are likely lost to impingement. *See* Fact Sheet at 52-54. Fraser has provided no reliable data to contradict this assessment.

Monitoring 3 times per week is a reasonable (indeed, probably the minimum) frequency of inspection needed to evaluate impingement impacts and minimize fish mortality at a CWIS that withdraws water 24 hours a day, 7 days a week. Even under this monitoring frequency, a fish impinged at the CWIS could remain impinged over 24 hours before being removed and returned to the river by facility employees. The longer a fish remains impinged on an intake screen, the more stress the organism experiences. For an intake that takes in water for a total of 168 hours/week, monitoring only 3 times per week (for approximately one hour each time) is reasonable.

EPA does not believe that monitoring 3 times per week is impracticable. The intake is not located far from the facility, which EPA visited on October 10, 2007. Moreover, Fraser operators already inspect the trash rack daily, *see* Fact Sheet at 57, and the intake screen will be in the vicinity of the trash racks.

In short, impingement monitoring three times per week is necessary to minimize adverse environmental impact, and is not an unreasonable burden to the facility.

5.8 FRASER COMMENT:

EPA includes an intake limit of 15.5 MGD. As much as Fraser intends to reduce its water use, any intake limit is not justified by §316(b). A limit of 15.5 MGD, in any event, is too stringent. Fraser is currently operating below that level, but not all five paper machines have been operating. Fraser requests that the intake limit - if any - be 17 MGD.

5.8 RESPONSE:

Fraser further clarified to EPA in a meeting of September 18, 2008, that at least some of the additional intake flow is necessary in order to ensure equalization of the penstock at the filter plant. Fraser claims that an excess filtered water flow through Outfall 025 of 1.5 MGD (as compared to the current average flow of 4.5 MGD) will ensure the penstock remains full (and thus equalized), even as water usage at the paper mill fluctuates with varied operations. Therefore, EPA has increased the intake flow limit from 15.5 MGD to 17 MGD. The permit has been changed at Part I.C.2.b as follows:

The permittee shall minimize the intake of water at the CWIS to the maximum extent practicable using best management practices (BMPs). In no event shall the

volume exceed 17 MGD on any day. **The permittee shall report the maximum daily and monthly average water intake flow.**

5.9 FRASER COMMENT:

For the reasons explained above on the water intake at the former pulp mill site, Section 316(b) does not apply to any intake at the Gorham mill, either. The intake at the Gorham facility is gravity-fed from the intake canal for the Cascade Dam hydroelectric plant, past the trash rack for the hydroelectric facility. The intake then flows to 15 filter beds comparable to the ones at the former pulp mill site. The through-bed flux is similar to that of the former pulp mill filter plant beds, at 0.004 fps at 12 MGD. Under normal conditions, the paper mill (including backwash) would not use more than this amount of water. In the few instances that this intake has been used in recent years, there has been no observation of impinged or entrained fish.

Fraser must be able to operate the water intake at the Gorham mill in business emergencies. Fraser requests that the intake at the paper mill be allowed to operate for up to two weeks on an emergency basis in its present configuration the event that the intake from the former pulp mill site is disrupted. (To put this in perspective, the water intake at the paper mill has been needed twice since Fraser purchased the mill in 2002, one week for a planned shutdown of the pulp mill (which will obviously never occur again) and 2 days for water supply line maintenance and repair.) Fraser also comments that the discharge from Outfall 017 needs to be allowed on an emergency basis.

In light of the emergency nature of the paper mill intake, the need to have this structure available for viable mill operation, and the fact that the percentage of cooling water in any flow through this intake will be less than 1 percent (as discussed above), Fraser requests that Sections I.C.4 and I.B.3 be deleted from the draft permit.

5.9 RESPONSE:

As explained in the Fact Sheet, EPA does not have sufficient information to determine whether this cooling water intake structure (referred to in the Fact Sheet as the Paper Mill CWIS) reflects the best technology available for minimizing adverse environmental impacts. Fraser's comment does not provide sufficient information to make that determination. *See, e.g.,* Draft Guidance for Evaluating the Adverse Impact of Cooling Water Intake Structures on the Aquatic Environment (EPA, Office of Water Enforcement) (May 1, 1977) (hereafter "1977 Draft 316(b) Guidance"), at 27-28. Nor can EPA rely on the generic statement that there has been no observation of impinged or entrained fish. *Cf.* Response to Comment 5.7.

EPA documented on a trip report to the facility on October 10, 2007, that:

The CWIS at the Paper Mill has not been assessed to determine if it meets BTA requirements. Fraser is unsure whether or not this CWIS will be used in the future. EPA informed Fraser that in the event of use, Fraser will need to engineer the structure to meet 316b requirements. Fraser has used this CWIS in the past as an emergency water intake.

If the permittee would like the permit to allow long-term usage of the CWIS at the pulp mill, the permittee must submit a request for permit modification containing the necessary information in order for EPA to make a BTA determination. (See response to Comment 5.11 for an outline of the necessary information). EPA expects that the BTA at the paper mill CWIS will be similar to that required for the pulp mill CWIS, including limiting the intake velocity to less than 0.5 fps, minimizing capacity, and installing a similar screen or mesh barrier.

In the case of a documented emergency that requires use of the alternate (paper mill) CWIS, the permittee shall contact EPA (at the contact listed in the NPDES Permit Program Instructions for the Discharge Monitoring Report Forms (DMRs)) within 24 hours of the start of use of the CWIS.

EPA sees such emergency use of the CWIS as analogous to provisions in Part II of the permit, Standard Conditions, of dealing with an “upset” condition. An “upset” is defined in Standard Conditions Part II.B.5.a of the permit as:

An exceptional incident in which there is an unintentional and temporary noncompliance with technology-based permit effluent limitations because of factors beyond the reasonable control of the permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation.

Therefore, the emergency use conditions shall include, along with a requirement for a detailed impingement report, the conditions appropriate for an “upset” condition, as outlined below.

The following conditions apply to operation of the paper mill CWIS during emergency use, and have been added at Part I.C.5 of the final permit:

- a. The volume of water withdrawn through the CWIS shall be limited to 12 MGD.
- b. The permittee shall implement a CWIS Monitoring Program to determine, as a baseline, the number of adult and juvenile fish of all species being impinged on or within the CWIS. All locations in the CWIS where fish could potentially be impinged or trapped shall be included as sampling sites. Monitoring shall take place hourly, during CWIS operation. Monitoring shall be for all fish species. Monitoring logs shall include the following: date; time; observer/operator; number of fish; and for each fish observed, the fish length, species, condition (whether the fish was alive when collected), and whether the fish was returned to the river.
- c. Use of the CWIS shall be discontinued as soon as the pulp mill CWIS is re-operable. The total number of days on which use of the CWIS occurs shall not exceed fourteen days in any calendar year. Following each use, the

permittee shall prepare and submit to EPA a CWIS Biological Monitoring report. This CWIS Biological Monitoring Report shall include all data from the monitoring logs collected in the CWIS Monitoring Program described above in Part (b), as well as a summary of the data. The CWIS Biological Monitoring Report shall be due on the month following CWIS use. In each such report, monitoring and sampling results shall be recorded and summarized for each operating period. The report shall include the locations in the CWIS that were monitored, the specific sampling methods used, the date and time of sampling, the length of any fish observed (in inches), the species of any fish observed, the condition (whether the fish was alive when collected), and whether the fish was returned to the river. The average daily flows for the CWIS on each date sampled, as well as any excursions from the CWIS Monitoring Program shall be reported. The CWIS Biological Monitoring Report also shall describe the measures taken to ensure that those involved in planning and conducting the monitoring have the necessary knowledge and ability to (1) ensure sampling accuracy and effectiveness, including the ability to identify all fish found in this area to the species level, and (2) return trapped organisms to the river by means designed to maximize their survival. The report shall also include the dates during which the CWIS was used and a detailed explanation of the reason for the use.

- d. The permittee shall submit a copy of all the reports required in this Part to EPA, NHDES, and the U. S. Fish and Wildlife Service (USFWS), and the New Hampshire Fish and Game Department (NHFGD) at the addresses listed in Part I.E of the permit, Monitoring and Reporting.
- e. Any unusual impingement event must be reported to the EPA, the NHDES, and the NHFGD within 24 hours by telephone. If the permittee observes four (4) or more fish on the CWIS during any one of the following situations, this would qualify as an unusual impingement event, warranting notification: 1) during a required impingement monitoring program observation event, 2) at any time the CWIS is viewed, or 3) when the cumulative number of individual fish observed on the CWIS totals four or more based on multiple observations over the course of any 24-hour period. The 24-hour notice must be followed with a written report.

The written report, to be submitted within ten working days of the event, shall include the following information:

- (1) The species, sizes, and approximate number of fish involved in the incident.
- (2) The time and date of the occurrence.
- (3) The operating mode of the facility, including the estimated volume of intake water.

- (4) The permittee's opinion as to the reason the incident occurred.
- (5) The remedial action the permittee will take to prevent or reduce the likelihood of a recurrence of the incident, to the maximum extent practicable.

Additionally, Part I.C.4 of the permit has been revised to clarify that the Paper Mill CWIS may be used to withdraw cooling water in the event of an emergency, as follows:

The intake of cooling water through the Paper Mill CWIS, and all associated discharges (including paper plant CWIS filter backwash), are prohibited (with the exception of during emergency use, as described in Part I.C.5 below). Cooling water consists of any water used for contact or noncontact cooling (including water used for equipment cooling, evaporative cooling tower makeup, and dilution of effluent heat content, but *not* including any such cooling water that was used in a manufacturing process either before or after it was used for cooling). The permittee may, at any time, submit a request for a permit modification to authorize the use of the Paper Mill CWIS and associated discharges. Prior to submission of such a request, the permittee shall upgrade the CWIS to reflect BTA. Any such permit modification request must include sufficient information for EPA to make a BTA determination. The permittee shall not withdraw cooling water through the Paper Mill CWIS unless and until EPA issues a permit modification authorizing such withdrawals.

Finally, Part I.B.3 has been clarified to state that the discharge of filter backwash from the Paper Mill through Outfall 017 is prohibited unless the conditions for emergency use of the Paper Mill CWIS in Part I.C.4 of the permit apply. If the emergency use conditions apply, the permittee shall apply the monitoring and reporting requirements for the Burgess Filter House Backwash Water (Part I.A.2.a and I.A.2.b of the permit) to the discharge of filter backwash through Outfall 017.

5.10 FRASER COMMENT:

EPA is proposing controls on the process water intake at this mill that have not been imposed in the recently issued permits for the competitors downstream in Maine. By imposing these conditions primarily designed for power generation facilities on one paper mill, and not on others, unfairly undermines the competitive position of the Gorham mill.

5.10 RESPONSE:

EPA disagrees that the regulation of CWIS's and §316(b) of the CWA are "conditions primarily designed for power generation facilities." The conditions applicable to the Paper Mill CWIS are that, in the absence of information sufficient to make a site-specific BTA determination, withdrawal of cooling water through this CWIS is not authorized. *See* Fact Sheet at 6-7. This is a site-specific determination under section 316(b) of the Clean Water Act and has nothing to do with power generation facilities.

Under section 316(b), EPA must ensure that the location, design, construction, and capacity of the facility's cooling water intake structures reflect the best technology available for minimizing adverse environmental impacts. This applies to any facility that is a point source with discharges to waters of the United States and withdraws cooling water, not just power generation facilities. Contrary to Fraser's impression, EPA has applied (and continues to apply) section 316(b) to paper mills other than Fraser Papers. Examples are Wausau Paper Printing and Writing in Groveton, NH and the Southworth Company in Turners Falls, MA.

Regarding costs and Fraser's competitive market position, see responses to comments 5.2 and 5.5.

5.11 FRASER COMMENT:

Last, in Section I.C.4 EPA includes authorization for Fraser to request a permit modification "at any time" to allow use of the Gorham mill water intake system. In place of this provision, Fraser requests a permit condition now that would allow the use of the Gorham intake structure and filter backwash outfall on a continuous basis so long as EPA has approved such use, and that such a request can be made at any time that this permit remains in effect. This will avoid the problem that might arise of Fraser's inability to amend the permit once the initial 5 year expiration date has passed. This request is critical for Fraser, as we no longer own the water intake structure in Berlin, and its use is subject to a revocable easement from the current owner. The loss of our right to use the water intake and filtration system in Berlin without being able to operate the water intake system in Gorham would obviously mean we could not operate the business.

5.11 RESPONSE:

As mentioned previously, the CWIS at the paper mill has not been assessed to determine if it meets BTA requirements. On a site visit of October 10, 2007, EPA observed the paper mill CWIS to be in poor condition and not to reflect Best Technology Available by any measure. At that time, EPA personnel informed Fraser that before the paper mill CWIS could be authorized for use, Fraser would need to engineer the structure to meet 316(b) requirements. EPA is willing to authorize use of the paper mill CWIS, but the permittee must supply the necessary information for EPA to make a BTA determination, and the permittee must retrofit the CWIS accordingly.

Based on review of the easement deed for the filtration plant, EPA believes that there would be enough time to make a BTA determination in the event that the use of the easement is revoked. The deed states that the easement for the pulp mill CWIS cannot be terminated on less than 18 months' notice, which would be enough time to process a timely permit modification request for use of the paper mill CWIS.

In order to avoid the problem that might arise based on the permittee's inability to amend the permit after the expiration date, EPA suggests that the permittee submit the necessary information to make a BTA determination for the paper mill CWIS within the first three years of the effective date of this permit, or within one month of receipt of a notice of

termination of the easement, whichever occurs first. This way, the permit may be modified prior to expiration so as to define BTA requirements for, and authorize use of, the paper mill CWIS.

If the permittee wishes to submit a request for permit modification to authorize use of the paper mill CWIS, EPA recommends that the permittee include the following information as part of such a request:

- a) A map showing the location of the CWIS.
- b) Measures to meet the following:
 - (1) Cease or reduce the intake of cooling water whenever withdrawal of source water is not necessary.
 - (2) Return all observed live fish impinged on or in the CWIS to the source water to the extent practicable in a manner that maximizes their chance of survival.
 - (3) Ensure that no chlorinated water is sprayed on impinged fish or invertebrates if sprayed water is used to remove impinged fish or invertebrates from the CWIS.
 - (4) Conduct and document a program tailored to the facility's CWIS to regularly monitor for impinged fish and impinged invertebrates and retain the results of this monitoring on-site for inspection by or submission to EPA for at least five calendar years from the date of the monitoring event. If practicable, this program shall include inspections of all locations where impingement may occur, at a minimum frequency of three times a week at varying times of day, operating conditions, and source water conditions. All inspections must be recorded in writing, and this inspection record shall include the date, time, presence or absence of impinged organisms, and the name of the inspector. If organisms are observed, the permittee must record the following information: the number, species and length of the impinged fish; the condition of the fish (dead or alive); and any actions taken by the facility (e.g. fish returned to river, fish collected, cooling water intake flow reduced, etc.). If the permittee determines that this monitoring program frequency and/or protocol are not practicable, the permittee shall provide an explanation of this determination, an alternate frequency and/or protocol, and an explanation of why the alternative frequency and/or protocol are adequate to determine the number of impinged fish and invertebrates on the facility's CWIS.
 - (5) If the permittee observes four (4) or more fish on the CWIS during any one of the following activities or situations, this would qualify as an unusual impingement event, warranting notification as described below: 1) during a regular impingement monitoring program observation event, 2) at any time the CWIS is viewed, or 3) when the cumulative number of individual fish observed on the CWIS totals four (4) or more based on multiple observations over the course of any 24-hour period. The

permittee shall report such an unusual impingement event to the EPA and NHDES within 24 hours by telephone. A written confirmation report shall be provided within five business days. These oral and written reports shall include the following information: the date and time of the unusual impingement event; the number, species and length of the impinged fish; the condition of the fish (dead or alive); and any actions taken by the facility (e.g. fish returned to river, fish collected, cooling water intake flow reduced, etc.).

- (6) Maintain a physical screening or exclusion technology with a maximum CWIS through-screen velocity of 0.5 feet per second (fps) or implement alternative steps of comparable effectiveness at minimizing the entrainment and impingement mortality of adult and juvenile fish in the CWIS.
- c) Documentation that describes the facility's monitoring program for impinged fish and/or invertebrate; or the required alternative monitoring plan frequency and/or protocol.
- d) A characterization of the source water body's aquatic life habitat in the vicinity of the CWIS during the seasons when the CWIS may be in use.
- e) The attributes of the CWIS.
- f) Design measures of the CWIS.
- g) Operation measures of the CWIS.
- h) Historical occurrence of impinged fish for the past five years.
- i) If applicable, a demonstration that the facility's intake rate is commensurate with a close-cycle recirculation system.
- j) Other components to reduce impingement and/or entrainment of aquatic life.

6.0 OTHER ISSUES

6.1 FRASER COMMENT:

Page 20 of 24 and 23 of 24 (special conditions 1) – Fraser has been an active participant in the Gulf Island Pond oxygenation system since its inception and will continue to participate. Fraser should not be held accountable independently for the operation of the oxygenation system, however. Fraser's negligible potential contribution to the DO issue at GI Pond does not justify a permit refinement that Fraser must independently operate the oxygenation system there.

6.1 RESPONSE:

It is helpful to set this comment in context. Ordinarily, EPA fulfills its obligation to include permit requirements necessary to achieve state water quality standards by means of water quality-based effluent limits. However, in this case, Fraser Papers (in concert with other dischargers) proposed to operate the Gulf Island Pond oxygenation system in lieu of more stringent effluent limits. *See* Fact Sheet at 46-47. In this permit, EPA is required to set permit requirements for Fraser Papers that are necessary to meet water quality standards. And, for this permit, Fraser Papers (through a collaboration of dischargers) requested that EPA allow it to meet water quality standards by oxygenation, rather than more stringent effluent limits. Pursuant to 40 C.F.R. § 125.3(f), EPA has granted that request.

The draft permit language was based on the section 125.3(f) demonstration submitted to EPA on behalf of Fraser Papers and other dischargers, and is also consistent with (although not based on) the MEDEP Board Order in the Matter of Verso Paper (formerly International Paper) (#ME0001937 and #W000623-5N-F-R), MEDEP Board Order in the Matter of Rumford Paper Company (#ME0002054 and #W000955-5N-G-R) and MEDEP Board Order in the Matter of FPL Energy Maine Hydro LLC (#L-17100-33-O-N).

In response to Fraser's comment and further information submitted by Maine DEP, the language in the final permit has been revised to include a specified oxygen injection number of 34,144 lbs/day injected at Upper Narrows for Fraser. Therefore, Fraser is only responsible for its portion of the GIP oxygenation system. The revised language is consistent with the final permit language that was used in the February 2008 appeal order from the Maine Board of Environmental Protection (BEP) for the GIPOP facilities in Maine (Verso Paper and Rumford Paper). This will ensure that the GIPOP facilities are regulated consistently regarding this issue. If at any point Fraser wishes to withdraw its section 125.3(f) demonstration and request a permit modification that will remove the oxygenation requirement in favor of potentially more stringent WQBELs, EPA will consider that request. *See also* Response to Comment 6.5.

6.2 FRASER COMMENT:

Page 1 of 24 – The mill should be identified as the Gorham Paper Mill with an address of 72 Cascade Flats, Gorham, New Hampshire.

6.2 RESPONSE:

The suggested change has been made in the final permit on page 1. Additionally, all references to "Cascade Paper Mill" have been changed to "Gorham Paper Mill."

6.3 FRASER COMMENT:

Page 1 of 24 – Outfall 018 should include discharge of stormwater from roof drains and yard areas in the vicinity of the mill, as in the current permit.

6.3 RESPONSE:

This change has been made to the permit. Part I.A.1, Table 1 of the permit now reads, “This treated effluent includes paper process wastewater, general housekeeping water, non-contact cooling water, boiler blowdown, and storm water.”

6.4 FRASER COMMENT:

Page 2 of 24 – In Part I.A.1 the reference to the “Cascade Paper Mill Wastewater Treatment Plant” for Outfall 018 should be changed to the Gorham Paper Mill Wastewater Treatment Plant.

6.4 RESPONSE:

The suggested change has been made in the final permit. “Cascade Paper Mill Wastewater Treatment Plant” has been changed to “Gorham Paper Mill Wastewater Treatment Plant” on page 2 of the permit.

6.5 MEDEP COMMENT:

TMDL and Point Source Waste Load Allocations

We would like to begin by providing comment on references throughout the Fact Sheet to the “waste load allocations identified in the TMDL.” The Total Maximum Daily Load (TMDL) approved by the EPA on July 18, 2005, did not establish numeric waste load allocations to point sources such as Fraser. Rather, the TMDL established maximum loadings for carbonaceous biochemical oxygen demand (CBOD) total suspended solids, total phosphorus and ortho-phosphorus to Gulf Island Pond (GIP) and total suspended solids to the Livermore Falls impoundment. The approved TMDL contains numerous tables with headings stating that they are summaries of “default and alternate allocations.” In other words, there are an infinite number of combinations of waste load allocations for each pollutant and each point source along with supplemental oxygenation to meet water quality standards in GIP and the Livermore Falls impoundment. In fact, Table 5, *Trading Ratios For Phosphorus* and Table 14, *Trading Ratios for TSS as a 60-day Average* establishes a methodology to develop alternate waste load allocations. We would like the record to be clear that the waste load allocations identified in the TMDL are only examples of numeric limits along with supplemental oxygen requirements to meet water quality standards and are not stipulated waste load allocations.

40 CFR §125.3(f)

Page 21 of the Fraser Fact Sheet states in part;

“EPA thus examined the issue of whether CWA § 301 (b)(1)(C) would require (i) BOD effluent limits for Fraser Papers more stringent than the waste load allocations identified in the TMDL, (ii) operation of an oxygen injection system under 40 C.F.R. §125.3(f), or (iii) both of the above. After reviewing the 2005 Section 125.3 Demonstration, EPA agrees with Fraser Papers that an oxygen injection system (albeit one with more injection capacity than the original 1992 system) is an effective environmental and economic method to achieve DO standards in GIP after consideration of alternatives such as advanced waste

treatment, recycle and reuse, land disposal, changes in operating methods, and other available methods. However, after a review of the remaining BOD loading for the paper mill and former pulp mill, EPA believes a modest reduction in BOD loading below the waste load allocation identified in the TMDL also is appropriate. Specifically, EPA has decided to require Fraser Papers to engage in oxygenation as proposed in the demonstration and to require water quality based effluent limits 10% below the levels identified as waste load allocations for Fraser Papers in the TMDL, where these limits are more stringent than technology-based limits. This 10% reduction is consistent with EPA's TMDL Review⁹ and upholds the principle that water quality requirements should be met by reducing effluent limits when possible, as opposed to the use of “non-treatment” techniques (40 C.F.R. §125.3(f)). Fraser is expected to meet these reduced effluent limits based on past performance levels since closure of the pulp mill. Therefore, with a single exception explained below, in determining the maximum amount of BOD, TSS, and phosphorus that Fraser may discharge and still comply with Maine WQS, EPA has relied on the amounts identified in the TMDL's waste load allocations, reduced by 10%.”

Footnote #9 makes reference to page 16 of EPA's TMDL review letter, more specifically the following text;

“In the licensing process, however, DEP will still need to determine the appropriate level of pollutant controls beyond which oxygen injection becomes the preferred economic and environmental method for attaining WQS in satisfaction of §125.3(f). That might be the level at which the WLAs have been established, or, as some have commented, it might be at levels closer to the actual (lower) pollutant loads that the mills have discharged in recent years.”

The Fact Sheet is not clear on how the 10% figure was derived. During the drafting of the Fraser permit, the Department made the EPA aware of the fact that we are actively working on revisions to the model used to prepare the TMDL. The Department was directed by the Board of Environmental Protection (Board) to evaluate said revisions as a result of a lengthy permit appeal process during the spring and summer of calendar year 2007. The Board was presented with testimony that indicated the revisions may be significant enough to greatly affect the supplemental oxygenation requirements in the TMDL such that a second oxygenation system may not be necessary or that additional reductions in pollutant loadings from the point sources may offset the need for the second system.

For Fraser, that could mean that the limits in the proposed draft permit may or may not be stringent enough to satisfy §125.3(f). A review of the permit compliance system (PCS) data indicates since closure of the pulp mill, Fraser's paper mill has discharged BOD and TSS at levels well below the proposed limits in the draft permit. Thus, it is possible that more stringent limits for BOD and TSS is the preferred economic and environmental method for attaining WQS and not additional oxygen injection to satisfy § 125.3(f). The Maine DEP is not in a position to recommend

numeric limitations for the Fraser permit until modeling is completed. We anticipate completing said modeling in the next 30 days.

Given the uncertainty of the situation described above, the State of Maine is objecting to the numeric limits for BOD, TSS and total phosphorus as proposed in the 7/11/08 draft NPDES permit. The State is requesting EPA delay issuance of the permit until the model is re-calibrated and the impact (or lack thereof) of loadings from the Fraser mill to Gulf Island Pond are assessed. We anticipate the assessment will be completed on or before October 15, 2008, at which time the State of Maine will be in a position to recommend numeric limitations and oxygen injection requirements to meet water quality standards and requirements.

If the EPA does not delay issuance of the permit as requested, the State of Maine is requesting a public hearing on this matter pursuant to Section 401(a)(2) of the Federal Water Pollution Control Act. In addition, if the permit is issued as a final document prior to the completion of the modeling, the State of Maine reserves the right to appeal the permit.

6.5 RESPONSE:

EPA agrees that the waste load allocations identified in the TMDL are only examples of numeric limits that, along with supplemental oxygen requirements, meet water quality standards. Therefore, EPA agrees that a revised Androscoggin River TMDL model (and an EPA-approved revision to the TMDL itself) could provide useful data with respect to the permit's BOD limits, TSS limits, phosphorus limits, and/or oxygenation requirements.

However, EPA does not agree that the best means of addressing this concern is by delaying issuance of the final permit. Although the Maine DEP is expected to complete its revised assessment by October 15, 2008, subsequent proceedings (e.g., public comment) may take some time and leave uncertainty until such proceedings are resolved. Moreover, without knowing in advance what recommendations the Maine DEP might make at the conclusion of its process and without prejudging the advisability of renewed public comment, it is at least conceivable that implementing Maine DEP's recommendations might require an additional round of notice and comment, which would add even more delay. Meanwhile, reissuance of a final permit to Fraser Papers is long overdue: the existing permit expired over eight years ago, and the new final permit addresses a number of important issues besides the TMDL (e.g., visible plume, CWIS, WET, temperature) and implementation of these provisions would also be delayed if issuance of the final permit was delayed.

Based on further discussion with Maine DEP, EPA understands Maine DEP's position to be that the permit requires a specific oxygen allocation number to be fully protective of Maine Water Quality Standards. Maine DEP has re-calculated the oxygen injection requirements for the GIPOP facilities (Fraser Papers, Verso Paper, and Rumford Paper) such that the only location for oxygen injection is at Upper Narrows. This amounts to

oxygen injection allocation at Upper Narrows for Fraser of 34,144 lbs/day, based on the following calculation:

$$10,500 \text{ lbs} + \frac{14,636 \text{ lbs}}{0.619} = 34,144 \text{ lbs/day}$$

To address supplemental oxygen issues, the language in the final permit has been revised to be consistent with the final permit language that was used in the February 2008 appeal order from the Maine Board of Environmental Protection (BEP) for the GIPOP facilities in Maine (Verso Paper and Rumford Paper). This will ensure that the GIPOP facilities are regulated consistently regarding this issue. Inclusion of this revised language in the final permit and a specified oxygen injection number of 34,144 lbs/day injected at Upper Narrows, in conjunction with the BOD, TSS, and total phosphorus limits proposed in the draft permit, will be protective of Maine water quality standards.

Therefore, Part I.G.1 of the final permit, Gulf Island Pond Oxygen Injection Operation has been revised as follows:

The permittee shall, independently or in cooperation with FPL Energy Maine Hydro LLC, Rumford Paper and Verso Paper, or their successors-in-interest, operate an upgraded oxygen injection system at Upper Narrows in Gulf Island Pond. The permittee shall be responsible for ensuring that oxygen is injected at the rate of at least 34,144 pounds per day at Upper Narrows in Gulf Island Pond, at an oxygen transfer efficiency of 33%. With prior written approval from EPA in consultation with the Maine Department of Environmental Protection (ME DEP), the permittee may inject oxygen at equivalent rates at higher transfer efficiencies and/or other locations, or take other equivalent measures to increase dissolved oxygen levels in Gulf Island Pond.

After re-calibration of the water quality model for Gulf Island Pond following the correction of any errors relating to dispersive mixing, as well as any other future modifications to the model and revisions to Maine DEP's May 2005 Androscoggin River Total Daily Maximum Load (TMDL) Report, and/or after reviewing the results of monitoring following the implementation of all additional oxygen injection or other equivalent measures and all reductions in point source discharges required pursuant to the TMDL Report and any future revisions thereto, EPA may reopen the permit pursuant to 40 C.F.R. § 122.62 and modify the permit to require reduced effluent limitations, changes in oxygen injection system(s) and/or oxygen injection rates, or changes in other equivalent measures, as may be deemed necessary to ensure that the permittee's wastewater discharge, either by itself or in combination with other discharges, does not cause or contribute to the violation of water quality standards in Gulf Island Pond.

Maine DEP is currently revising the model based on a directive from the BEP. It expects that revisions to the model, in conjunction with a higher transfer efficiency at the GIPOP at Upper Narrows that will be in effect by June 2009 may lead to a lower oxygen injection requirement for Fraser Paper, Rumford Paper, and Verso Paper. If this is

determined to be so, Maine DEP intends to reopen the Verso and Rumford permits to modify them accordingly and EPA may modify the Fraser permit accordingly.

For these reasons, EPA has responded to Maine DEP's concern by revising the final permit's re-opener provision in Part I.H, rather than by delaying issuance of the final permit. Part I.H of the final permit states:

This permit may be modified, or alternatively revoked and reissued, if a future reallocation of the Total Maximum Daily Load (TMDL), the temperature monitoring requirements, or any other water quality based study of the Androscoggin River performed by EPA, NHDES, and/or the Maine DEP indicate the discharge causes, has the reasonable potential to cause, or contributes to an exceedance of any State water quality criterion. These results may be considered new information under 40 CFR 122.62(a)(2) and the permit may be modified, or alternatively, revoked and reissued to require further study or revised effluent limitations. Any of these additional limits could be expressed in terms of concentration and/or mass where appropriate. Furthermore, should any of these studies result in a revision of the available dilution, current limits based on dilution could be revised.

Additionally, if EPA receives information that the GIPOP oxygenation system is not installed and operated pursuant to the plan and schedule approved by the Maine DEP, or new information regarding whether oxygenation remains the preferred economic and environmental method for attaining water quality standards, EPA may reopen the permit pursuant to 40 C.F.R. § 122.62, reevaluate whether oxygenation remains the preferred alternative under § 125.3(f), and decide whether Fraser Papers should be required to achieve further effluent reductions.

Based on discussion with Maine DEP, EPA expects that the provisions in the Final Permit discussed above resolve most or all of Maine DEP's concerns and that Maine DEP will not formally request a public hearing under CWA 401(a)(2).

6.6 NHDES COMMENT:

Page 1, the date of issuance of the permit that this permit will supersede should be January 21, 1997. This is the date of the last modification of the permit originally issued on June 10, 1992.

6.6 RESPONSE:

This permit will supersede the permit originally issued on June 10, 1992, last modified on January 21, 1997. This has been clarified on the first page of the permit.

6.7 NHDES COMMENT:

Page 5, footnote 3 and Page 10, footnote 5. In the first sentence the phrase "equal intervals of no more than sixty" should read "equal intervals of no less than sixty" to ensure that the samples are spread out over time.

6.7 RESPONSE:

The first sentence in both Part I.A.1, footnote 3, and Part I.A.2, footnote, 5, has been changed from “equal intervals of no more than sixty” to “equal intervals of no less than sixty” to correct this typographical error.

6.8 FRASER COMMENT:

Testing Frequency – Page 10 of 24 (note 3) – Fraser agrees that certain additional monitoring should occur when polymer is added. However, as in the current permit, we should be required to do additional monitoring only when the polymers are used 10 or more days in a quarter.

6.8 RESPONSE:

EPA sees no basis as to why the additional monitoring for polymer should only occur when polymer is used 10 or more days in a quarter, nor does the permittee supply any basis other than history. The effects of the polymer should be monitored anytime the polymer is used, not just when it is used a certain number of days in a quarter. Therefore, the monitoring specified in Part I.A.2.b of the draft permit for Outfall 010(b) remains unchanged in the final permit.

6.9 FRASER COMMENT

Page 13 of 24 – The measurement frequency of the estimate of flow from outfall 025 should be changed from continuous to once per month.

6.10 NHDES COMMENT:

Page 13, monitoring requirements for flow. At the top of the table, the measurement frequency and, sample type for flow should either be "continuous and recorder," or "1/month and Estimate."

6.9 & 6.10 RESPONSE:

In accordance with the comments from Fraser and NHDES, the monitoring requirement for the flow through Outfall 025 in Part I.A.3 of the permit has been changed from “continuous” to “1/month.”

6.11 FRASER COMMENT

Page 13 of 24 – This Outfall [025] is for filtered water. There is no need to monitor TSS.

6.11 RESPONSE:

Based on limited present data, EPA does not have information to suggest that there are elevated levels of TSS in the discharge through Outfall 025. However, since no monitoring data is available for this discharge of filtered water, EPA is requiring the permittee to monitor the TSS concentration 1/month in order to collect more information. Nevertheless, EPA is adding a condition to the permit in Part I.A.3, footnote 5, to allow the permittee to request a reduction of the monitoring frequency for TSS following one year of samples which do not detect elevated levels of TSS in the discharge from Outfall 025.

7.0 ADDITIONAL CLARIFICATIONS

7.1 CLARIFICATION

The requirement in Part I.D.1 of the permit, for the permittee to being participation in the ambient water quality monitoring of GIP on June 1, 2008, has been changed to June 1, 2009, so that the permittee's participation does not pre-date the permit.

The requirement in Part I.D.1 of the permit, for the permittee to begin submitting written reports summarizing the results of the ambient water quality monitoring of GIP for that year has been changed from November 30, 2008 to November 30, 2009, so that submittal of reports does not pre-date the updated ambient water quality monitoring plan required to be submitted beginning February 1, 2009. Additionally, in this same section of Part I.D.1, the phrase "ambient quality monitoring" has been changed to "ambient water quality monitoring."

Also in Part I.D.1, the phrase, "submit an updated ambient water quality monitoring plan for that year to the EPA, and the ME DEP for review and comment with or without conditions if the monitoring plan is different than as specified in this section" has been changed to "submit an updated ambient water quality monitoring plan for that year to the EPA, and the ME DEP for review and comment" for clarification purposes.

7.2 CLARIFICATION

Part I.A.1, footnote 7, has been revised to specify that the metals shall be reported as total recoverable concentrations. Footnote 7 now states:

For each WET test the permittee shall report on the appropriate DMR, the concentrations of the Hardness, Total Ammonia Nitrogen as Nitrogen, Alkalinity, pH, Specific Conductance, Total Solids, Total Organic Carbon, Total Residual Chlorine, Dissolved Oxygen, Aluminum, Cadmium, Chromium, Copper, Lead, Nickel, Zinc, Magnesium, and Calcium found in the 100 percent effluent sample. All metals shall be reported as total recoverable concentrations. The permittee should note that all chemical parameter results must still be reported in the appropriate toxicity report.

7.3 CLARIFICATION

Part I.A.1, footnote 8, has been revised to state:

As a minimum, the upstream sampling location shall be representative of naturally occurring conditions in the Androscoggin River and must be taken prior to mixing with any of the discharges from the Gorham Paper Mill WWTP. Fraser Papers shall identify in writing the upstream and downstream sampling locations to EPA and the NHDES for review and approval within 30 days of the effective date of the permit. Turbidity and temperature sampling is to commence on the effective date of the permit.

This is revised from the draft permit which specified "...the effective date of the final permit. Turbidity and temperature sampling is to commence on the effective date of the final permit"

7.4 CLARIFICATION

Part I.A.1, footnote 10 has been revised from “as described in detail in Part V.A.5.d of the fact sheet and Part I.D.3 of the draft permit” to “as described in detail in Part I.D.3 of the permit,” so as not to refer to the Fact Sheet or draft permit in the final permit.

7.5 CLARIFICATION

Part I.A.1, footnote 13 has been revised for clarification purposes from “The permittee shall report the upstream and downstream river temperatures that corresponds to the daily maximum discharge temperature reported for Outfall 018” to “The permittee shall report the upstream and downstream river temperatures that are concurrent with the daily maximum discharge temperature reported for the month for Outfall 018.”

7.6 CLARIFICATION

The phrase “shall occur” has been removed from Part I.A.2, footnote 12 (footnote 13 in the draft permit), for clarification purposes. The footnote now states:

The permittee is required to measure and report the turbidity in terms of nephelometric turbidity units (NTU) at an upstream location (as described herein) as close in time as possible, but not greater than 1 hour from the time during which the effluent turbidity is measured and reported, to obtain concurrent turbidity measurements.

7.7 CLARIFICATION

In Part I.A.3, footnote 4, the phrase, “The pH sampling is to commence on the effective date of the final permit” has been changed to “The pH sampling is to commence on the effective date of the permit” for clarification purposes.

7.8 CLARIFICATION

In Part I.A.10, the phrase “The permittee shall submit the results to EPA of any additional testing done to that required herein...” has been changed to “The permittee shall submit the results to EPA of any additional testing done beyond that required herein...”

7.9 CLARIFICATION

In Part I.A.11, the phrase “General Requirements of this permit” has been revised to “General Requirements (Part II) of this permit.”

7.10 CLARIFICATION

Part I.E. of the permit has been revised to include the address of US Fish and Wildlife (USFWS) and New Hampshire Fish and Game Department (NHFGD) for the purpose of contact information. This revision includes addition of the USFWS address, which was absent from the draft permit. It also changes the permit so as not to require the permittee to submit DMR information to NHFGD. However, the permittee is required to submit several biological reports to these agencies, as specified throughout the permit.

7.11 CLARIFICATION

Part I.C.6 has been changed from a requirement to notify the “Regional Administrator and Director of the Water Division of the New Hampshire Department of Environmental Services” to a requirement to notify the “EPA and NHDES – WD” to be consistent with other permit notification requirements.

7.12 CLARIFICATION

In Part I.D.2, the phrase “in accordance with work plan approved by the NH-DES” has been changed to “in accordance with a work plan approved by the NHDES.” Additionally, all references to NH-DES in the final permit have been changed to NHDES.

Also in Part I.D.2, the phrase “with the December DMR” has been changed to “annually with the December DMR” to clarify that the results must be submitted annually with the December DMR.

Also in Part I.D.2, the phrase “copies of the results of the survey results” has been changed to “copies of the monitoring results” for clarification purposes.

Also in Part I.D.2, the phrase “that data will be take to support the conditions of the River” has been changed to “such a decline will be taken to reflect the conditions of the River” for clarification purposes.

7.13 CLARIFICATION

In the equation to calculate the PRTI in Part I.D.3, the “(Daily Min Flow_{river})” has been changed to “(Daily Min Flow_{ambient})” to be consistent with the monitoring requirements in Part I.A.1 of the permit.

7.14 CLARIFICATION

In Part I.G.3, the phrase “(e.g., 5.0 to 9.0 Standard Units)” has been replaced with “(5.0 to 9.0 Standard Units)” for clarification that this is the pH range found in the applicable National Effluent Limitation Guideline for the Pulp, Paper, and Paperboard Point Source Category, in 40 CFR Part 430, not an example of a range in 40 CFR Part 430.

7.15 CLARIFICATION

The phrase, “and from associated outfalls in Berlin, NH” has been added to the first page of the permit to clarify that the discharges through Outfall 010 and 025 are also authorized by the permit, although they are not located at the Gorham Paper Mill.